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May/June 1985 AEI Journal on Government and Society

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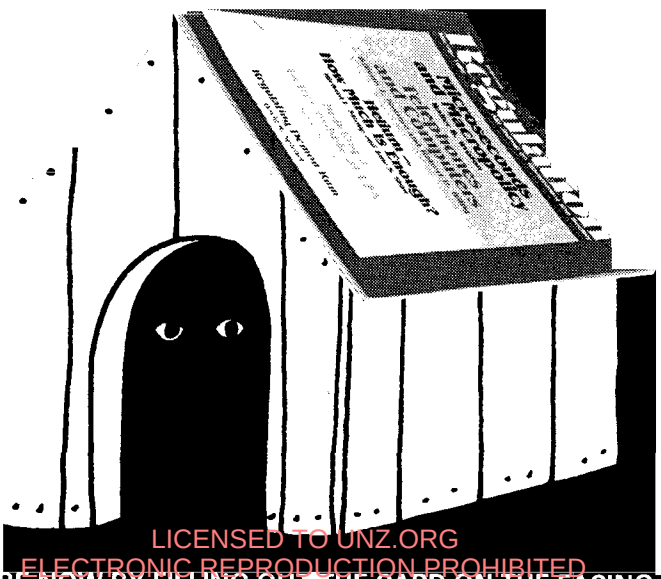

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May/June 1985 AEI Journal on Government and Society

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LETTERS 2

PERSPECTIVES on Current Developments 4

Down the Hatch with School Independence

No More Early Projections?

Insider Trading as Victimless Crime

In Brief—

VACCINES AND PRODUCT LIABILITY—A CASE OF CONTAGIOUS LITIGATION 11

Edmund W. Kitch

HARVEST OF WASTE: THE MARKETING ORDER PROGRAM 19

Thomas M. Lenard and *Michael P. Mazur*

THE GREAT SATELLITE SHOOTOUT 27

Peter F. Cowhey and *Jonathan D. Aronson*

REDISTRIBUTING RISK 37

Chris Whipple

READINGS of Particular Interest 45

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Letters

We welcome letters from readers, particularly commentaries that reflect upon or take issue with material we have published. The writer's name, affiliation, address, and telephone number should be included. Because of space limitations, letters are subject to abridgment.

Should Courts Guard Economic Liberties?

TO THE EDITOR:

Antonin Scalia believes the Supreme Court is correct not to revive the doctrine of economic due process, which holds that the Constitution protects substantive economic rights ("On the Merits of the Frying Pan," *Regulation,* January/February 1985). He offers two principal reasons. First, if judges endorse economic due process, they will be more likely to constitutionalize "social judgments that ought better be left to the democratic process." To the objection that in the last fifty years judges have been doing much of the latter and little of the former, he responds that the life of the law is logic, not experience.

Second, Scalia believes judges will do poorly at policing economic legislation because they are economic illiterates, and we cannot assume that courts will favor property more than the political branches, since social changes have made it "foolish to look for Daddy Warbucks on the bench." True, but irrelevant. Most people are economic illiterates; Daddy Warbucks loved free markets the same way Lee Iacocca does. But courts will respond to factional pressures differently from legislatures, not because their ideology differs but because their incentive structures differ.

Since the 1930s, when the Court concluded that legislatures could not err in economic matters, a whole new discipline has come into existence. The study of public choice—the use of economics to study politics—has shown that legislatures are often subverted by powerful special interests. Even the maximum-hours-for-bakers legislation in the pivotal *Lochner* case was designed less to help the working man than to aid mechanized bakeries at the expense of their smaller, more labor-intensive competitors. Courts are less exposed to these pressures than the more political branches of government.

Scalia seems to believe that conservatives should respond to two generations of liberal judicial activism by rolling over and playing dead. What conservatives should worry about, I believe, is whether judges are applying principles that accord with the Constitution, not whether this application leads to "too much" or "too little" review of economic regulation. If there were no principles under which to review such regulation, the courts would have to leave it alone. But there are.

The Supreme Court strikes down restrictions on so-called fundamental liberties as unconstitutional unless they serve a compelling state interest. Suppose the Court were to do the same thing with restrictions on economic freedom. Regulations that restrict personal freedom without making the affected parties better off *in their own view of the matter* have no redeeming social virtues. The government has no compelling interest in enacting such rules.

Economics provides principled ways to identify this sort of statute or regulation. Examples include state laws under which automakers may not establish or relocate dealerships without state permission, drug stores must be owned principally by registered pharmacists actively engaged in their operation, and major refiners may not operate retail gas stations.

The Supreme Court has upheld laws in all these areas. Yet judges need little economic sophistication to see that these laws reflect a breakdown of legislative processes —the capture of the legislature by special interest groups. They need only decline to wear the blinders Scalia (and the current Court majority) prescribes for them.

If judicial intervention fails in easy cases like these, there will be time enough to grant Scalia's thesis. In the meantime, however, Judge Scalia and other conservative judges recently arrived from the academy should stop dragging their feet and start providing the intellectual leadership of which they are so readily capable, and which their colleagues so desperately need.

Wesley J. Liebeler,
UCLA School of Law

ANTONIN SCALIA responds:

Professor Liebeler's first attack on my views is a nicely crafted allusion to Oliver Wendell Holmes's *bon mot* that "the life of the law has not been logic: it has been experience." It would be more apt if Justice Holmes had not dissented vigorously from the (later overruled) *Lochner* opinion that Liebeler thinks so admirable. Holmes began that dissent:

"This case [striking down a state law regulating working hours] is decided upon an economic theory which a large part of the country does not entertain. If it were a question whether I agreed with that theory, I should desire to study it further and long before making up my mind. But I do not conceive that to be my duty, because I strongly believe that my agreement or disagreement has nothing to do with the right of a majority to embody their opinions in law. It is settled by various decisions of this court that state constitutions and state laws may regulate life in many ways which we as legislators might think as injudicious or if you like as tyrannical as this, and which equally with this interfere with the liberty to contract. Sunday laws and usury laws are ancient examples. A more modern one is the prohibition of lotteries. The liberty of the citizen to do as he likes so long as he does not interfere with the liberty of others to do the same, which has been a shibboleth for some well-known writers, is interfered with by school laws, by the Post Office, by every state or municipal institution which takes his money for purposes thought desirable, whether he likes it or not."

As this excerpt suggests, it is not I but Liebeler who would have judges run our polity on the basis of a priori principles rather than be guided by the practices and traditions of the society that give content to such vague provisions of the

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Constitution as the due process clause.

What I said in my article regarding logic was not that it is the touchstone of the validity of court decrees, but that "there is an inevitable tug of logical consistency upon human affairs, and especially upon judicial affairs"—so that one is unlikely to have government by shibboleth with regard to economic liberties and avoid it elsewhere. Liebeler's letter obligingly makes my point. He expresses his thesis that "regulations that restrict personal freedom without making the affected parties better off in their own view of the matter" are unconstitutional by describing them as having "no redeeming social virtues." That phrase is a reference to the Supreme Court's (now abandoned) test for obscenity, which by judicial decree revolutionized our small-town social mores in a fashion the Framers could never have intended. Later, his sense for logic leads him to note that "the government has no compelling interest" in the sorts of regulations he despises. That is a reference to the "compelling state interest" test used especially in First Amendment cases (though increasingly in other contexts as well) to prevent such assaults upon our freedoms as banning the wearing in a courtroom of a jacket emblazoned with the motto "F – – – the draft" (spelled out, of course). Now perhaps Liebeler likes the trend of these noneconomic cases, and hopes that it will expand well beyond the First Amendment in the future. For those who do not, the first point of my piece was that it is folly to rely upon in the economic field, and thus validate everywhere, the principles of constitutional analysis that produced that trend.

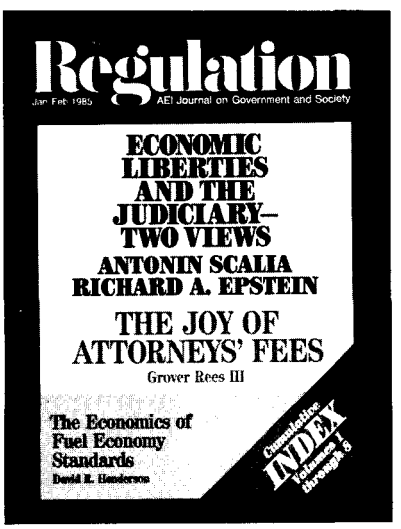
My second point was that the judges on whom Liebeler would confer such power might not share his view of economics, and might constitutionalize just the opposite of what he desires. His response is that it needs "little economic sophistication" to see that his economics are right. What does it take beyond a half-century of interventionist economics (*not* just on the interest-group-dominated floors of legislatures but in the economic councils of government) to establish that what he considers a "little economic sophistication" cannot be assumed? Especially coming from an eminent antitrust scholar, this vote of confidence in the economic acuity of the courts is—as Dr. Johnson described an acquaintance's second marriage—the triumph of hope over experience. If Liebeler is not presumptuous in his willingness to prevent his countrymen from applying economic views contrary to his own, however correct the latter may be (and, unlike Holmes, I think they are correct), he is surely misguided in assuming that judges will not prevent the application of his views instead. Experience is to the contrary.

Adding Up the CAFE Bill

TO THE EDITOR:

Although David Henderson's analysis of automotive fuel economy standards makes a number of valid points ("The Economics of Fuel Economy Standards," *Regulation*, January/February 1985), it fails to mention the most fundamental defect of CAFE: the standards actually may not save this country any fuel. True, the "average" car now consumes less gasoline than its predecessor, but it is not average consumption that counts. What does count (if anything in this program counts) is total usage by the automotive fleet, and that cannot be reliably inferred from vehicle averages.

To see this, we need only reflect on how an automobile company subject to CAFE might respond. Given enough time and resources, it will decrease fleet fuel consumption by changing engines, transmissions, and vehicle sizes, as indeed all companies have done. But a rising average mileage requirement can also be met (and in the short term, can *only* be met) by shifting the mix of vehicles sold. Here a company might (a) reduce sales of large cars, (b) increase sales of small cars, or (c) both. Although either (a) or (b) by itself can achieve a higher average, they have entirely different effects on total fuel consumption. Simply reducing large-car sales lowers total units sold and total consumption, but raising small-car sales by itself *increases* total vehicle sales and total consumption, even as it raises average mileage. This simple property of averages entirely obscures the effect of CAFE on aggregate fuel consumption.



But what do the companies actually do? I have shown elsewhere that they generally will both reduce large-car sales and raise small-car sales, the proportions depending on which segment of demand is more responsive to price changes (in the *Quarterly Journal of Economics*, November 1983). There is much evidence that companies pursued exactly this strategy during the first eighteen months of the CAFE law (until demand shifts in early 1979 made it nonbinding) and again recently as market demand has reverted to large cars.

The net effect of this "mix shift" on total fuel consumption, therefore, depends not only on average mileage, but also on total vehicle sales. If the latter are unchanged—unchanged, that is, by CAFE itself—the average is a good proxy for the total. This is the universal assumption in calculations of the effect of the standard on fuel consumption. But it is in general not true, and in fact the evidence clearly suggests a net sales increase under the price and elasticity conditions of the automobile market. This sales increase causes the naive calculation to overstate fuel savings. In fact, as previously suggested, a sufficiently large induced sales increase can completely wipe out all fuel savings. My data show that auto market conditions may be closer to this full-offset case than to the constant-sales assumption.

So where has policy gone wrong? The problem, I believe, is a false analogy between CAFE and other trade-off devices like stationary-source emission bubbles. Both seem to permit efficient intra-firm allocations of regulatory burden, but there is a fundamental difference. Whereas a bubble allows least-cost choices to achieve maximum total emissions (the regulatory objective), CAFE permits least-cost choices to achieve average fuel economy—which is simply *not* the ultimate objective. This design flaw in CAFE implies that years of effort

(*Continues on page 52*)

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Perspectives
on current developments

Down the Hatch with School Independence

The Department of Education's latest regulatory program, like so many of its predecessors, began in response to a legitimate concern. Parents complained that teachers and counselors were subjecting students to embarrassing or disturbing questions in the classroom. Some of these questions were exercises in statistics gathering: "Are you pregnant?" "Have you ever had an abortion?" Others were meant to identify troubled students ripe for counseling: "Does a member of your family drink more alcohol than you think is good?" Yet others were intended to instill ethical values of various sorts, or at least "clarify" the values that children already held. "If all the members of this class were on a bobsled in Alaska, and three of them had to be thrown to the wolves, whom would you pick and why?"

To many parents and students, this sort of questioning appeared rather impertinent and intrusive. Prying into a family's drinking or marital problems, let alone urging kids to inform on their parents, seemed to trample on personal privacy and invite further intrusion in the form of intervention by official social workers. Questioning students' sensitive or deeply held views about, say, nuclear war or family planning could pose a challenge to the values parents had tried to instill—even (or especially) if the questioning proceeded from an ostensibly "value-free" point of departure.

Twenty or thirty years ago, parents with complaints like this would have had a fairly obvious course of political action. They would have complained to local school administrators and, if that failed, raised a hue and cry in their own town or school district, preferably around the time of the next school board elections. School officials seek to avoid controversy, and the parents' chances of having an impact, given some persistence, would probably have been pretty good.

But this is the post–Great-Society era, and modern parents who want to change things in their local school head straight for Washington. Thus it was that intrusive school questioning became a national issue almost before it became a local one. Organized conservative groups took up the cause of the dissatisfied parents and, in 1978, prevailed on Congress to pass something called the Hatch Amendment, named after Senator Orrin Hatch (Republican, Utah). That amendment, part of the General Education Provisions Act, provides that no school can subject any child to psychiatric or psychological examination in any federally funded program without parental consent, if the questioning is primarily intended to reveal information in any of a list of sensitive subject areas. Among the items on the list are students' "potentially embarrassing" psychological problems, political affiliations, illegal behavior, critical appraisals of family members, and so forth.

Several years passed, during which time the controversy passed through another fairly typical phase: the Hatch Amendment sat there on the books, but the Department of Education did little to enforce it. So conservative activists began a campaign to pressure the department to put teeth in the law—specifically, by establishing procedures to handle Hatch Amendment complaints from parents. This succeeded in getting a set of proposed regulations out of the department on February 22, 1984. The next step was for the activists to arrange an appropriate public record on this proposal. A support network was activated, witnesses and commenters stepped forward, and the process of "public participation" worked smoothly. Of 183 witnesses at public hearings held in seven cities, all but two called for speedy enactment of strong regulations. Of the mailed-in comments, 1,625 were in favor and only 270 were opposed. (The organized education communi-

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ty had been caught unaware.) If hearings and comments are a good way to detect true public sentiment, the department would logically conclude that the public was demanding quick action.

When the department adopted final regulations last September, again typically, it did not satisfy the activists, whose spokesmen have criticized the rules as "much too weak and limited in several respects." Under the rules, parents can complain to the department only after they have tried to resolve their complaint at the local level, although actual exhaustion of local remedies is not required. If the department's investigation shows the complaint to be well-founded, the school district is given time to rectify every violation; if that fails, the department can issue an order to cease and desist, or it can cut off funds, subject to appeal.

Now that a right has been created, the next step has been to mass-produce it. The *Phyllis Schlafly Report* has printed a form letter for parents to send to school officials, containing a blanket request "that my child be involved in NO school activities or materials listed below unless I have first reviewed all the relevant materials and have given my written consent for their use." The list attached contains twenty-two major categories, including hot buttons like sex education, evolution, and nuclear war, along with presumably cooler buttons like liquor, witchcraft, "discussions of death and dying," and autobiographical assignments.

The Schlafly list stretches the original statutory category of federally funded "psychological and psychiatric testing and examination" virtually to the breaking point. Senator Hatch himself complains that the parent groups are going too far. But it was not so easy for school officials to ignore the form letters when they began coming in. The department's regulation writers were unable to agree on how to handle a number of potentially controversial issues, such as the definitions of "psychological test" and "primary purpose." So the agency left those issues open, to be resolved when parent complaints came in and were acted on. (So far only six parental complaints have reached Washington, but hundreds of others are being hashed out at lower levels.) The department's own rather vague view is that "most classroom activities" are not covered by the Hatch Amendment.

The education lobby, for its part, has finally roused itself and is lobbying hard for a revision of the Hatch regulations. Such groups as the National Education Association and the national Parent-Teacher Association (PTA) find themselves marching under the unaccustomed banner of decentralization and local control, side by side with school-administrator groups that have tamely submitted to federal control on other issues.

Aside from its reversal of the usual roles of educational "liberals" and "conservatives," there is not much that distinguishes this latest regulatory fracas from those of the past. The translation of plausible interests into non-negotiable rights, the one-sided hearings and deliberately vague regulations, the pervasive spread of the adversary process, and above all the centralization of educational authority in Washington—we have seen all this before. Of course, the people who perfected the machinery of regulatory overkill in controversies over civil rights, handicapped education, and bilingual education probably had no idea that it would ever be turned against them by their conservative counterparts—especially since those conservatives were proclaiming themselves at the time to be ardent opponents of such overkill.

A number of sub-issues provide amusing evidence of how the two sides have exchanged positions. In a reverse-echo of the school prayer controversy, the liberals point out that many of the questionnaires are voluntary, while conservatives respond that students come under strong informal pressure to participate. And the conservative Schlafly newsletter has gone so far as to argue that when school districts accept unrestricted federal grants, the Hatch Amendment should be imported into all their individual programs, not just those that receive specific federal funds. In the better-known Grove City case, on the other hand, conservatives have strongly supported the principle of "program specificity," while civil rights groups have practically denounced it as a racist plot. The Education Department, unafraid of consistency, seems to favor program specificity in both the Hatch and civil rights cases.

Conservative parents point out that some objectionable questionnaires originate at the federal level, so that it is natural to try to stop them there. And they add that at least their

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Washington intervention is meant to expand the range of family choice: by contrast, the federal women's educational equity program does not simply give feminist parents the right to opt out of stereotypical curricula, but seeks to replace it with subsidized non-sexist material. In theory, at least, allowing parents to pull one student out of a class does not much affect fellow students.

But most schools will go to considerable lengths to keep a class together rather than relegate a pupil to study hall (or resort to individualized instruction, which is expensive and disruptive). School officials' first reaction to the threat of parental non-consent is thus to see whether they can drop the activity in question. And although the dropping of some topics, like "death education" or liquor education, might not be any great loss, other controversial subjects, like civics and biology, are central to almost any curriculum. Giving families a choice of topics within a school, in short, is a poor substitute for giving them a choice between schools.

The ultimate irony is that, within recent memory, it has been conservatives who were favoring, and liberals who were opposing, allowing school officials to interrogate students about their politics and personal lives. The reason, of course, is that such questioning was meant not to discover opportunities to provide therapy, but to enforce what were called community standards of morality. One might hope that someday liberals will return to their defense of individual privacy against government inquisition, while conservatives will stop undercutting the authority of the schoolmaster by running to Washington with every complaint.

No More Early Projections?

In the words of baseball sage Yogi Berra, "It ain't over 'till it's over." Obviously Yogi was not talking about presidential elections. As anyone knows who watched television the night Ronald Reagan trounced Walter Mondale, that game is often over by 8:01 P.M. eastern standard time, hours before the polls close on the West Coast. For the network pollsters who have been conducting exit surveys through the day, the actual vote counts in all but the closest elections just confirm what they had known by lunchtime.

Networks go to great expense to provide early projections because viewers and listeners eagerly tune in to them—most from curiosity, no doubt, but others, perhaps, because they want to figure out whether to bother voting. Which raises an interesting question. To the prospective nonvoter, early projections are a blessing—a sort of labor-saving device that helps identify those close races in which voting might conceivably make a difference. To the politician and concerned civic activist, they are a curse because they threaten to lower the turnout rate—that ever-drooping pulse rate of presumed electoral legitimacy.

Network projections have been controversial at least since Lyndon Johnson's landslide victory over Barry Goldwater in 1964. After that election there were charges that West Coast voters decided not to cast ballots after they heard the networks declare Johnson the winner. In later years computer technology and polling techniques advanced rapidly. On election night in 1980, NBC's John Chancellor suggested a "very substantial" victory in the making for Reagan at 6:31 P.M. EST and the victory itself at 8:18 P.M., and CBS and ABC followed suit. Not all the networks' West Coast affiliates carried those projections, but the network-owned-and-operated stations in Los Angeles and San Francisco did, and West Coast radio stations relayed similar bulletins to listeners during the afternoon rush hour, according to Percy Tannenbaum and Leslie Kostrich's 1983 American Enterprise Institute book *Turned-On TV, Turned-Off Voters*. In 1984 all three networks projected Reagan's victory shortly after the polls closed in the East at 8:00 P.M.

In both years there were anecdotal reports (discounted by some long-time observers) that voters abandoned poll queues when they heard Reagan had been crowned the winner (and Jimmy Carter had conceded). Democrats complained that their local candidates suffered disproportionately from this effect, either because more Democrats vote toward day's end or because Carter voters were more likely than Reagan voters to be discouraged. They believe a higher turnout might have changed the outcome of some important congressional contests in which incumbents such as Al Ullman

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(Democrat, Oregon) and James Corman (Democrat, California) lost by narrow margins.

An outright ban on early projections would bruise the spirit if not bloody the letter of the First Amendment. Instead, lawmakers have been jaw-boning extensively; both House and Senate have passed nonbinding resolutions urging the networks to exercise voluntary restraints. The networks used to resist this pressure, but this year they agreed not to project results in a state until the polls close and to restrict their commentary about voting trends, so that Dan Rather, for example, will no longer hint at 7:00 P.M. that "it appears to be a big night for Candidate Smith." This will not, of course, keep exit poll data from spreading by telephone and word-of-mouth, with all the inaccuracies of the rumor process. Nor will it prevent news organizations from reporting remarks made by party officials before the polls close.

The networks' preferred alternative is a nationwide uniform poll closing time, an idea that dates back at least as far as a 1964 proposal by CBS executive Frank Stanton. The 99th Congress is now considering six bills, all introduced by House Democrats, offering variations on this theme.

H.R. 348 (Guarini, New Jersey) would hold federal elections on the Sunday following the first Saturday in November. The polls in the continental United States would close at 10:00 P.M. EST. H.R. 622 (Wyden, Oregon) would open the polls at 8:00 A.M. and close them at 11:00 P.M. EST. Under H.R. 639 (Biaggi, New York) elections would fall on the Sunday following the first Monday in November, with polls opening at noon and closing at 9:00 P.M. EST. The bill also provides that anyone could use absentee ballots, whether out of town or not; it would cover only the elections of 1988, 1990, and 1992. A second Biaggi bill, H.R. 640, differs in that it would establish a twenty-four-hour voting day with polls opening at 9:00 A.M. EST. H.R. 1759 (Bates, California) would close polls at 10:30 P.M. EST. Lastly, H.R. 1107 (Boxer, California) would give the Federal Election Commission the power to set and regulate uniform poll opening and closing times in the continental United States.

Past Supreme Court rulings have recognized Congress's authority to regulate the timing of presidential elections. Article II, section 1, clause 4 of the Constitution states: "The Congress may determine the time of choosing the (Presidential) electors, and the day on which they shall give their votes; which day shall be the same throughout the United States." Whether Congress should use these powers is another matter; there is still no convincing proof that early projections skew election results.

Postelection surveys of the 1964 race conducted in 1965 and reanalyzed in 1967 failed to find any conclusive evidence that early projections influenced the outcome. The most often cited study finding a positive link was conducted by John Jackson and William McGee, based on 1980 election data compiled by the University of Michigan's National Election Study and California's Field Poll. That study suggests that nationwide turnout would have been 6 to 11 percent greater in the 1980 presidential election had the networks not broadcast early projections.

Some political scientists have questioned the Jackson-McGee findings, however, because the respondents were not surveyed until two months after the election, by which time they might have decided to blame their nonvoting—often a source of guilt feelings—on the by-then well-publicized scapegoat of early projections. (The 1964 survey suffered from a similar problem.) The Jackson-McGee study has also come under criticism for making no allowance for the timing of Carter's concession speech, misidentifying the point at which network election coverage started in the East, and allegedly employing statistically suspect methods.

A 1984 election-day survey of Oregon voters by William C. Adams of George Washington University reached quite different results. Adams found that "only 2.6 percent of the nonvoters blamed TV for their failure to vote—roughly less than one-quarter of one percent of the entire electorate. Most non-voters had not heard the TV projections. Political preferences of the tiny handful of TV-discouraged voters resembled the electorate at large," which further reduces the chance that early projections made a difference in election outcomes.

Whether or not network projections reduce voter turnout, there is reason to believe that some of the uniform poll closing bills might do the same thing. In California, Oregon, and Washington, polls now close at 8:00 P.M. local

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time (11:00 P.M. EST). Three of the bills under consideration would shave from a half-hour to two hours off the evening hours of voting in those states, inconveniencing many voters. In Oregon, according to the secretary of state there, one of every ten voters voted between 7:00 and 8:00 P.M. pacific standard time. In the 1974, 1978, and 1980 elections between 6.8 and 9.2 percent of Los Angeles County voters cast ballots after 7:00 P.M. PST.

By the same token, the uniform poll *opening* time of 8:00 A.M. EST stipulated in some of the bills would discourage many East Coast voters who now cast their ballots before they go to work. In all but one of the twenty-one states in the eastern time zone the polls now open before 8:00 A.M., most at 6:00 or 6:30 A.M.

Shifting elections to the weekend would probably bring about much more radical changes in turnout than network projections could possibly be causing. Religious scruples and church attendance, family outings, and sports events would all divert some voters. In 1978, when the city of Cleveland held a vigorously campaigned and extensively reported mayoral recall election on a Sunday, turnout dropped to only 40 percent of registered voters compared with 62 percent in the regular general mayoral contest one year earlier.

Lengthening the election day carries its own cost. A uniform closing time of 11:00 P.M. EST for the continental United States would require forty states and the District of Columbia to keep their polls open at least two hours longer than they do now. Local election officials are already having a hard time recruiting poll workers, according to the editor of *Election Administration Reporter*, Richard Smolka, who says Chicago usually falls about 1,000 poll workers short. Under the current polling hours, one million poll workers are required at the nation's 179,000 precinct polling places.

Whatever the practical harm done by early projections, it is illogical to charge them with "disenfranchising" West Coast voters. In most situations where votes are recorded in sequence, such as at nominating conventions and in legislatures, getting to vote last is a sought-after strategic advantage that can give its holder added flexibility and perhaps the balance of power, especially in close multi-candidate races. Eastern voters might plausibly complain, in fact, that they are presently forced to commit themselves while their lucky Western cousins get to hold their votes in reserve. If eastern states wish to heed these complaints they could refrain from counting ballots until the polls of the western states close. More effective yet, voters in eastern states might refuse to talk to exit pollsters, or even tell them fibs, as *Chicago Tribune* columnist Mike Royko proposed last year. Alternatively, Californians who feel guilty about their late-voting privilege are free to vote earlier in the day, or urge their state to experiment with earlier voting hours.

If early projections really subject voters to disenfranchisement, and if the question is really one of rights rather than convenience, then Alaskans and Hawaiians deserve protection too. Any uniform poll time ample enough to include them would almost have to be on the order of a twenty-four hour election day. Perhaps fortunately, the evils of disenfranchisement seem to arouse controversy only when they afflict states with large or prominent delegations in Congress.

Insider Trading as Victimless Crime

Few corporate-governance issues arouse as much indignation in the general press as insider trading. Allowing executives to reap trading profits based on their knowledge of internal corporate developments is widely viewed as grossly unfair—though it is not always clear who is victimized by this unfairness. Sometimes the companies that the insiders work for suffer harm, but other times they welcome the trading. Outside shareholders may envy the profits of inside traders, but proving that they are harmed by the practice is much more difficult. On the whole, the most common grievance against insider trading is simply that it reduces public confidence, and therefore public participation, in the stock market.

From the applause that greets each new prosecution of a suspected inside trader—the most recent target being former Defense Department official Paul Thayer—one would hardly guess that the merits of this sort of regulation are being increasingly questioned in academic circles. Insider trading seems to be one of those cases where regulators are moving in the opposite direction from academic opinion.

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In Brief–

Spy in the Sky at EPA. The Supreme Court agreed June 10 to decide whether the Environmental Protection Agency violated Dow Chemical's right to privacy when it chartered an airplane to fly a surveillance mission over a Dow factory to search for pollution violations. Dow says the overflight of its Midland, Michigan plant, which was conducted without a warrant, infringed on its Fourth Amendment protection against warrantless searches and seizures. EPA's agents used a sophisticated aerial camera that can distinguish equipment as small as one-half inch in diameter.

Dow won its case in district court, but the Sixth Circuit Court of Appeals reversed, holding that Dow had no reasonable expectation of privacy because it had taken no "precautions" against aerial surveillance. Lawyers on Dow's side complained that the only effective precaution would be to build an opaque dome over the entire plant —lending new meaning to EPA's use of the term "bubble policy."

He Who Pays the Wiper. . . . The city government in Baltimore has been spending much of its time recently debating the issue of how and whether to regulate "squeegee kids." Those are the kids who run up to cars stopped at red lights, wash the windshields, and then ask the driver for a tip. Some motorists complain that they are being intimidated into paying tips even when they didn't want their windshields washed. Defenders of the squeegee kids say most of them are just trying to earn an honest living and that summer jobs for teenagers are hard to come by.

The city council, at the behest of the police commissioner, passed a measure banning the squeegee kids, but the debate was acrimonious, with one member charging that the measure was a racist scheme to punish mostly black kids at the behest of mostly white motorists. That prompted mayor William Schaefer to appoint a special squeegee commission to work out a compromise.

They came up with a plan to set aside government-run squeegee centers in parking lots where youths wearing photo ID badges could wash windows under the eye of designated supervisors. "It lets the kids know there are regulations and supervisors in the real world," explains local activist Lywonda Megginson-Kennon. Thirteen-year-old wiper Kevin Archer is already used to the idea, according to an interview in the *Baltimore Sun:* " 'I'm going to get me something on my shirt to say it's all right for me to wash windows,' he said, believing that the legitimacy of a city-issued photo ID would win him more customers." As for those recalcitrant urchins who continue to dart into traffic to offer their services, they can be fined under the new law, or, better yet, sent to counseling.

Of course, there are spoilsports who insist that not one motorist in a thousand will bother to patronize the new parking-lot centers. If that happens we may expect renewed debate between those who say that the squeegeeists' services have always been unwanted, and those who say that the Baltimore government has simply made it inconvenient to patronize them.

Competition Spreads North. The Canadian government has recommended changing the law to make the nation's railroads more competitive with U.S. lines, the *Wall Street Journal* reports. Under the Staggers Rail Act of 1980, U.S. carriers have snatched $75 million in business from their northern competitors, the Canadian Transport Commission was told in hearings. (See "U.S.-Canadian Railroads: Bordering on Frustration," *Regulation*, July/August 1983.)

The proposals would allow Canadian railroads to enter confidential contracts with shippers to carry some transborder shipments, as American railroads are now allowed to do. The Canadian lines would also be freed from having to file official tariffs on some international traffic.

The standard defense of the practice is still Henry G. Manne's 1966 volume *Insider Trading and the Stock Market*, which has been followed by more recent work by a number of other scholars. These critics argue that insider trading enhances the efficiency of the capital market by enabling stock prices to adjust more quickly to reflect underlying economic realities. If insiders are allowed to trade they will tend to push prices in the "right" direction, and faster than if the market had to wait for formal public disclosure. Moreover, the ultimate price adjustment attributable to a piece of news may be smoother than the sharp price "cliff" that would result if insider trading were perfectly suppressed until the news became public.

In addition, Manne says, insider trading may serve as an efficient way for some firms to compensate employees whose entrepreneurial work strongly influences share prices. Fixed salaries are a poor way to call forth such creative efforts because the company cannot know in advance how much the creative efforts will be worth or who will produce them. Bonus schemes might seem to solve this problem from the company's point of view, but they jeopardize the creative employee, who may not agree with the company's after-the-fact evaluation of his contribution. Stock options are a closer way to tie performance to compensation, but because creativity is unpredictable, the firm must issue the options to all employees who might

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make creative discoveries. A right to carry on insider trading, however, is of special value to those employees who are the first to reach correct conclusions about the company's future prospects, a group that should more closely overlap those who make profitable entrepreneurial discoveries. In addition, the amount of compensation derived from inside trading will not depend on the after-the-fact discretion of the employer.

There is no general common law rule prohibiting insider trading, nor do firms seem to make much of an effort to prohibit it through internal regulation. Dennis Carlton of the University of Chicago and Daniel Fischel of that university's law school raise this latter point as a question in a recent *Stanford Law Review* article: Why do companies hardly ever try to stamp out insider trading by their own executives? Most of the evils attributed to insider trading, after all, wind up harming the firm whose stock is traded. If the returns enjoyed by average shareholders are depressed, the firm will find it more costly to raise new capital. The same thing will happen if investors become "demoralized"—assuming this vague harm has any measurable content. If insider trading is a major discouragement to present or prospective stockholders or financiers, then firms that ban trading by their executives should out-compete their rivals in capital markets.

It should not be very costly for firms to develop internal rules against insider trading. The cost to a firm of writing restrictions into executives' contracts should be minimal, and the informal sanction of dismissal is probably the most powerful sanction in very many cases anyway. The general absence of such restraints, both now and before the legal assault on insider trading got into gear in the 1960s, suggests that they are not of great value to investors.

There is an exception: law firms and financial printers often go to significant lengths to prevent insider trading by their employees. This exception makes sense in several ways. First, such trading is unlikely to serve as compensation for unusual creative services. Second, the stock bought is most often not that of the client firm, but that of a merger partner, and such purchases may drive up the price the client must pay. Moreover, the confidential information is generated by, and belongs to, the customer, not the trader's own firm. Since the clients are unlikely to look favorably on such trading, these firms, which depend on their reputations in the corporate community, have strong incentives to adopt internal controls.

The naive explanation for why corporate restraints on insider trading are rare is that managers are in cahoots with each other to enrich themselves at the expense of other shareholders. Although such managerial perfidy is not unknown—and is restrained by its own set of legal rules—the modern corporate governance literature makes clear that in most situations the market has ways of getting managers to police each other's behavior for the shareholders' benefit.

Moreover, companies generally have legal recourse against damaging acts of employee disloyalty, quite apart from the insider trading laws. When insider trading by employees raises the cost of a merger or repurchase program, the employee's actions amount to the "preemption" of a corporate opportunity, which could violate their fiduciary duty to the corporation under state law. For example, Anheuser-Busch has sued Thayer, charging that he violated directors' duties under state corporation law when he allegedly told friends to buy shares in a firm Anheuser was planning to merge with, thus increasing Anheuser's ultimate acquisition costs. Similarly, companies might have a strong interest in forbidding insiders to sell their stock short, a practice that may give executives a perverse incentive to manufacture bad news or even sabotage the company (and that Congress has made illegal).

Although the regulators of insider trading may have been on the intellectual defensive for some time, they remain on the legislative and judicial offensive. In the Insider Trading Sanctions Act of 1984, Congress last August gave the Securities and Exchange Commission new powers to impose treble damages, and Congress also increased fines tenfold and added stiff civil penalties to the existing criminal penalties for inside traders and their aiders and abettors.

The SEC also continues to pursue instances of what might be called "outsider trading." The first notable case was that of a financial printer who traded on his knowledge of takeover offers. The Supreme Court threw out that conviction in 1980, ruling that the printer, who was not an "insider," had no duty to disclose

(*Continues on page 36*)

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Vaccines and Product Liability

A Case of Contagious Litigation

Edmund W. Kitch

LAWYERS THINK of the product liability revolution as completed in many of the larger states by 1970. This law, however, is taking years to work its implications through to the management decisions, engineering practices, and economic structure of the countless affected industries. It will have very different effects, depending on the risks, benefits, economic base, and the design, distribution, and manufacturing options available for each product. But, as to vaccines, it is becoming clear that liability law has had disastrous effects.

Product liability law evolved simply. First came the idea that a manufacturer who negligently makes and sells a harmful product should, like any other negligent actor, pay for harm caused. Then the rule was simplified in the interest of predictability and judicial economy: if the product was defective, why worry whether the defect originated in "negligence"? The producer controls the manufacturing process and should be encouraged by the tort system to exercise a degree of care concomitant with *all* the costs of potential defects—including costs incurred by injured purchasers. Finally, judges decided that the concept of "defect" should not be limited to a product that deviates from the product design—the brakes that are unconnected, the defective metal casting—but can include a product badly designed, so that every one of the products produced as intended is legally "defective." And so the courts plunged into a new and daunting enterprise—the design of products and their delivery systems, with all the subtle and difficult trade-offs of risk and benefit the design process involves.

Judges have proved to be bad designers. Confronted with isolated risks in the form of an injured or deceased plaintiff, and operating within the narrow focus of litigation, judges understandably have trouble giving appropriate weight to the risks and benefits not before the court—to the benefits lost or costs incurred by others if the product or its delivery system is changed to reduce the particular risk that befell the plaintiff. (See Peter Huber's recent article in the *Columbia Law Review* for an eloquent and wide-ranging exposition of this thesis.) Because of this institutional bias, the courts in product design liability cases often *increase* the product risks faced by society.

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The liability treatment of vaccination is a striking case in point. Vaccination produces both great good, in the form of mass immunization against disease, and measurable harm, in the form of rare but serious side effects. Virtually all medical authorities agree that the public health balance tilts overwhelmingly in favor of vaccination. Yet the development of liability law now threatens to make both existing and promising new vaccines sporadically or entirely unavailable to a public and medical community that wants and needs them.

Two 1984 trial court verdicts demonstrate just how easily the product liability rules lead to trouble. In both cases, the verdicts were premised on the theory that American vaccine policy should be different from what it in fact is. A verdict for $1.3 million was based on the argument that the United States should use a vaccine once manufactured by Eli Lilly & Co. but abandoned when the Food and Drug Administration (FDA) review committee raised questions about its efficacy. A $10 million verdict depended on the argument that Salk killed-virus vaccine should be used instead of Sabin live-virus vaccine in polio immunization. Historical experience suggests that this policy shift would increase total U.S. cases of polio from some thirty to several thousand a year.

These decisions, and numerous others like them, illustrate how a few strong- and simple-minded judges can, in the face of near-universal repudiation by their peers and academic critics, unwittingly threaten the public health in order to confer a needed windfall on a few grievously suffering plaintiffs.

An Ambiguous Threat

Although the scope and nature of a manufacturer's liability is a state law question, all of the important decisions dealing with liability for vaccines have come from federal courts interpreting state laws. The first notably troublesome decision was *Reyes* v. *Wyeth Laboratories* (1974). Judge John Minor Wisdom of the Fifth Circuit Court of Appeals upheld a jury verdict finding Wyeth Laboratories liable for polio suffered by a young girl who had received Sabin oral polio vaccine, even though the vaccine was properly produced and administered and the scientific evidence showed that the polio was caused by an unrelated wild virus. Wyeth's fault, Judge Wisdom held, was that it had not taken steps to make sure that the child's parents were advised of the very minute possibility that the vaccine might cause polio. If it had, the child's parents might have decided they did not want the vaccine administered.

Reyes was subject to a number of different interpretations. Read literally, it appeared only to say that the producers of vaccines had to give better warnings where there was reason to believe risks existed. Producers have since attempted to do so by writing an ever more elaborate package insert, by requiring doctors to advise patients of the risk, and by withdrawing from any active role in promoting use of vaccines. But under the surface, *Reyes* was far more threatening to the producers. Judge Wisdom's logic depended on an assumption that the warning could make a difference, that families who were properly warned might decline the vaccine. That seems particularly unlikely in the circumstances confronted by the Reyes family, for there was a polio epidemic in the area at the time of the vaccination, whereas the risks from the vaccine itself are minute. The opinion in fact appeared to reflect a deeper and more threatening principle: one way or the other, manufacturers will have to pay for any condition a jury finds to have been caused by a vaccine, regardless of the warning given. Since the range of available expert testimony from credentialed experts is quite large and the reach of the jury's fact-finding powers great, that raised the specter of producers' liability for many conditions not otherwise known to medical scientists as causally related to a vaccine.

Read literally, [Reyes] appeared only to say that the producers of vaccines had to give better warnings.... But under the surface, [it] was far more threatening....

Congress Ducks the Swine Flu Issue

The threatening implications of *Reyes* were not lost on the vaccine producers, who soon had an occasion to voice their concern. In January 1976 swine flu virus was discovered in a human

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population with resulting illness (and one death) at Fort Dix, New Jersey. In response, the U.S. Public Health Service's Centers for Disease Control recommended immunization against swine flu for the entire U.S. population, citing the disastrous pandemic of 1918, which was caused by a nearly identical strain of influenza virus. As proposed to Congress, the program assumed that the drug industry would be willing to sell the vaccine at a price close to cost as a dramatic contribution to protecting the public health. But producers were not about to provide vaccine for administration to the entire population in a crash program without protection from *Reyes*.

Some in the industry must have hoped that the occasion would force Congress to repudiate *Reyes*. Surely Congress would see the foolishness of imposing open-ended liability on vaccine producers as a condition of their selling the vaccine that could ward off a pending national epidemic. But Congress refused to confront the problem, and industry was caught in a bind. To argue that *Reyes* stood for absolute liability, regardless of the warning given, would be to concede that reading of the opinion as the correct one in future litigation. Yet, if there was no liability when an adequate warning was given, then what was the problem? Surely the industry had to agree that a warning should be given.

In the end, Congress passed a statute providing a short-run, most unsatisfactory solution. The U.S. government assumed the liability of any "program participant," though it reserved the right to recover from participants any damages attributable to conventional negligence by the manufacturers. The substantive law from the plaintiff's perspective was left unchanged.

The Swine Flu Aftermath

The producers' concern about liability for the swine flu vaccine proved well-founded. Not only did swine flu fail to reappear after nearly 45 million people had been vaccinated, but amid the intense publicity that surrounded the program there were reports that vaccination was followed in a small number of cases by Guillain-Barré syndrome, a disabling impairment of the central nervous system. The Centers for Disease Control conducted a study and found that, in the ten weeks following administration of the vaccine, the syndrome occurred at a rate greater than normal. The conclusion has been that the vaccine was statistically related to less than a 250-case increase of Guillain-Barré syndrome in the United States.

This correlation was medically important, for it pointed to a possible causal link. But the statistical correlation did not explain the phenomenon. Did the vaccine cause the syndrome? Did it reveal a preexisting condition? Did it accelerate an event that would have occurred anyway? Or was the correlation simply an "observation effect"—was the publicity about the possible connection inclining medical personnel to diagnose the syndrome in patients who had been vaccinated? There is still no answer to these questions, and the relationship has not appeared again with subsequent flu vaccines.

The publicity and the study, however, did prompt the filing of over 4,000 damage claims. The Department of Justice, representing the United States, adopted a liberal policy toward the settlement of the cases, and eventually paid over $72 million on over 750 claims. It stipulated to liability for Guillain-Barré syndrome in cases where the claimant could show that the syndrome had been caused by the vaccine. This stipulation was hardly required unless one accepted a broad reading of *Reyes*, but it reflected, in part, the fact that the Department of Justice did not have the resources to litigate all of the cases. Because of the statistical correlation demonstrated in the Centers for Disease Control study, the Department of Justice also adopted the policy of paying claims where the claimant could show the onset of Guillain-Barré syndrome within ten weeks after vaccination.

That settlement policy, however, hardly brought an end to the litigation. About 1,600 lawsuits were filed, resulting in over 100 opinions in the federal courts. The Department of Justice was very successful in defending its basic position—only six plaintiffs who apparently would not have recovered under the settlement policy recovered in court. But two of those six cases, coming near the end of six years of litigation, were decided by federal courts of appeals, and resoundingly and strikingly reaffirmed the threat of *Reyes*.

The 1984 decision by the Tenth Circuit Court of Appeals, *Unthank* v. *United States*, is

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one of the least coherent circuit court opinions I have ever read. It seems to stand only for the proposition: someone must pay. The other case, *Petty* v. *United States* (Eighth Circuit Court of Appeals, 1984), returned to the warning game. The government had developed the warning actually provided with the vaccine in accordance with special requirements set out in the statute. It stated: "As with any vaccine or drug, the possibility of severe or potentially fatal reactions exists." This warning was given even though, at the time of administration, there was no established relationship between the vaccine and *any* serious, long-lasting side effect. But in *Petty* the judge found the warning inadequate because it did not specifically warn of the risk of the "serum sickness" that beset the plaintiff. (There is no epidemiological evidence that flu vaccine can cause that malady.) The decision provoked a striking dissent from Judge Myron Bright: "I think the practical consequence of the court's decision is to impose so stringent a warning requirement as likely to render any future mass inoculation program infeasible, no matter how desirable."

Polio and Whooping Cough

Two vaccines still on the market do appear to lead to adverse consequences in a few persons. Some recipients of Sabin live polio vaccine and some contacts of recipients appear to contract polio from the vaccine—a connection verified by the similarity between the vaccine virus and the infecting virus cultured from the afflicted person. There are now thought to be as many as thirty such cases a year. In *Johnson* v. *American Cyanamid Co.* (Eighteenth Judicial District for the District of Sedgwick County, Kansas, June 1984), a jury awarded a verdict of $2 million in compensatory damages and $8 million in punitive damages to a parent whose son was administered properly manufactured and marketed Sabin oral polio vaccine. The parent persuaded the jury that his son had been infected by polio virus derived from the vaccine.

A large-scale English epidemiological study has statistically associated pertussis vaccine—administered to children as the "P" component in the DTP vaccine to provide immunity against whooping cough—with adverse neurological symptoms. Although the statistical interpretation of such an uncontrolled study is tricky, the study suggests that as many as one out of 100,000 of the recipients of the three doses of DTP may suffer severe adverse reactions—about thirty cases a year in the United States. In *Toner* v. *Lederle Laboratories* (U.S. District Court, April 1984), an Idaho jury awarded a verdict of $1,131,200 to a child who suffered severe neurological impairment after receiving DTP.

In neither the Sabin oral polio nor the pertussis vaccine is the mechanism by which the vaccine leads to the effect understood. It is entirely possible that persons are afflicted only because of an idiosyncratic susceptibility to the disease or that the vaccine in some way triggers the onset of a latent but preexisting condition.

The Sabin Vaccine. The litigation concerning the Sabin oral polio vaccine engages one of the most long-standing and bitter controversies in modern medical science. The original polio vaccine in the United States (and elsewhere) was the Salk killed-virus vaccine. A decade after this vaccine had been widely administered, there were still several thousand cases of polio in the United States each year. At that juncture, the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control (the body that *de facto* governs medical standards for the administration of vaccines in the United States) switched its recommendation from Salk to Sabin. Its reasons were, first, that the more easily administered Sabin vaccine (taken orally rather than by injection) would, as a practical matter, be more widely administered and, second, that the live vaccine would pass to others in contact with the recipient, conferring immunity on those who had not been directly vaccinated. The Sabin vaccine was also thought to confer a stronger and more long-lasting immunity. The switch worked in the sense that polio (except for those cases that appear related to the vaccine) disappeared from the resident U.S. population.

But the choice between Salk and Sabin has continued to divide the medical and scientific communities. Some countries, most notably in Scandinavia, have relied almost entirely on the Salk vaccine. This vaccine does not seem to have the risk of causing polio in some recipients and contacts. It has not been associated with adverse side effects, although that may be

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because its use, almost entirely outside the United States since 1962, has been studied less intensively than that of the Sabin vaccine. A National Academy of Sciences panel recommended in 1977 that the use of Salk should precede the use of Sabin so that the immunity conferred by the Salk would protect against the Sabin while retaining the enhanced immunization of the Sabin. Whether this strategy would actually work has not been confirmed; it is, however, clear that unimmunized contacts of the recipient would also have to take Salk first if they were to be provided with additional protection. ACIP did not change its recommendation in response to the academy's decision, although the package insert for the Sabin vaccine now advises that contacts should be informed of the opportunity to take Salk vaccine first. Sales of Salk vaccine in the United States remain small.

Sabin oral polio vaccine was administered to Emil Johnson's child in 1975, just after the *Reyes* decision. Emil became ill shortly thereafter. Diagnosis of his condition proved difficult and Lederle offered evidence at trial that he had not had polio at all. The plaintiff mounted a direct attack on the use of Sabin vaccine. Daryl Salk, son of Jonas, the Salk of Salk vaccine, testified as an uncompensated expert for the plaintiff that Sabin was dangerous and should not be used at all. A videotaped deposition was offered to the jury, in which a Dr. Batenger, said to be the head of immunization in Sweden, testified that Sabin vaccine is too dangerous, is inferior to Salk, and is not used in Sweden. The tenor of the argument is captured by the opening statement of the plaintiff's lawyer:

> Now, another thing we contend that American Cyanamid did wrong in this case was . . . they knew, they and the government . . . really pulled the wool over everybody's eyes together. . . .[T]hey knew that this vaccine had the following characteristics. . . . [T]hat it had a live virus in it that would be shed by the person it was given to, and that by that shedding process of the fecal material, and also by oral shedding, slobbering, drools, kissing the baby, whatever, that by that process other people would be immunized. That is to say, if Joe Smith, a member of the public who had not been immunized, went to visit his brother, Jim Smith, and they had a baby that had received . . . [the vaccine], the government and Lederle . . . knew that anyone handling that person who had received the [vaccine] . . . would also get vaccinated. And in the process, that the vaccine that was given to the baby might get stronger or more virulent and give the person polio.
>
> Now, admittedly, it was not something that happened very often. But it happened often enough that you're going to find that five to ten people in this country every year have been paralyzed or died as a result of it. Unknowingly and without their consent. . . . And the government and Lederle knew it and sacrificed those people without telling them. . . . [W]e contend that you assess punitive damages to set an example to that company, to say, "Hey, this is not fair. We're going to set an example, and you don't do this anymore, going to punish you."

Compare that statement with the one in the 1974 package insert, in effect at the time of the Johnson vaccination:

> Paralytic disease following the ingestion of live poliovirus vaccines has been reported in individuals receiving the vaccine, and in some instances, in persons who were in close contact with subjects who had been given live oral poliovirus vaccine. Fortunately, such occurrences are rare, but considering the epidemiological evidence developed with respect to the total group of "vaccine related cases" it is believed by some that at least some of the cases were caused by the vaccine. The estimated risk of vaccine-induced paralytic disease occurring in vaccinees or those in close contact with vaccinees is extremely low. A total of approximately 30 of such cases were reported for the 8 year period covering 1963 to 1970, during which time about 147,000,000 doses of the vaccine were distributed nationally. Even though this risk is low, it should always be a source of consideration.

Against this background, it is clear that the jury in *Johnson* was invited to, and did, impose punitive damages for the purpose of forcing the United States to change its polio vaccination policy. That jury of twelve men and women decided that the risk to some recipients and contacts outweighed the risk that the use of the

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Salk vaccine would lead to a higher incidence of polio from which many more would suffer.

The unstable and idiosyncratic nature of this type of litigation is illustrated by the fact that, only ten months earlier, the Sixth Circuit Court of Appeals affirmed a verdict in favor of American Cyanamid (doing business as Lederle Laboratories) in an action brought by an immune-deficient child who developed polio after being given the Sabin vaccine. The court found that the package insert adequately warned of that risk (*Schindler* v. *Lederle Laboratories*, 1983).

... the jury in Johnson [imposed] punitive damages for the purpose of forcing the United States to change its polio vaccination policy.

The Pertussis Vaccine. In *Toner*, the plaintiff argued that the pertussis vaccine was negligently designed because a safer vaccine, Trisolgen, was once marketed by Eli Lilly. Trisolgen was made from portions of the pertussis virus rather than from the whole killed virus. It caused fewer short-term side effects such as localized swelling and irritation. The plaintiff argued that Trisolgen was therefore probably also safer with respect to long-term side effects than the whole virus vaccine, that it was effective because none of the persons who had received it had been reported as having contracted whooping cough during the years it was sold, and that therefore sale of the whole virus vaccine was negligent. The jury was persuaded—and thus repudiated existing U.S. vaccination policy by means of a damage verdict.

But the relationship between short- and long-term side effects has never been seriously studied and, since the source of the adverse effects is not known, it is impossible to know if they are correlated. During the extended review of pre-1962 drugs that the FDA conducted in the late 1960s and early 1970s, the review committee for vaccines raised questions about the efficacy of Trisolgen. That efficacy had never been established in clinical trials, and if the portions of the virus that were taken out were important for effective immunization, it would have reduced effectiveness. Confronted with the challenge from the review panel and the expense of establishing effectiveness in clinical trials satisfactory to the FDA, and no doubt aware of the threat of *Reyes*, Eli Lilly stopped marketing the vaccine in 1975.

Warning and Causation

The most astonishing aspect of these two recent cases is the verdict for punitive damages in *Johnson*. Punitive damages are awarded for "outrageous" behavior. The idea that disagreements about what should and should not be included in the package insert are an appropriate basis for punitive damages is odd, though one that the Kansas Supreme Court had embraced the year before (*Wooderson* v. *Ortho Pharmaceutical Corp.*, 1984). But the package insert in *Johnson* did warn of the possibility of contact polio. So the jury's theory must have been that the insert either "outrageously" failed to go further and tell the treating doctor what to do about the risk (the plaintiff argued that Salk should have been administered first) or "outrageously" understated the risks of the vaccine. An internal Lederle memo had indeed urged the company to respond to *Reyes* with a more draconian warning, and the plaintiff in *Johnson* used this memo to bolster his argument that Lederle was engaged in intentional deception. Thus does the failure to embrace all the implications of an extreme legal decision based on medical misinformation become an "outrage."

If the issue is the appropriate wording of a warning, the courts should recognize that a warning can both overstate and understate a risk. A warning that overstates the risk is a health hazard to those who are deterred from using the vaccine. It seems plain that the sober, balanced warning in fact provided in *Johnson* was, to say the least, *not* "outrageously" deficient.

If the cases really stand for the unannounced and undefended rule that the manufacturers should pay for all adverse side effects of the vaccines, then the courts have a lot of explaining left to do. Why should vaccines, one of the most successful health technologies of the century, be singled out for such a harsh rule? Why should the rule be imposed on vaccines but not, for instance, on automobiles,

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which, in exactly the same sense as "cause" is used in the vaccine cases, "cause" death and injury on the highways? Is it socially more important to have inexpensive cars than to have inexpensive vaccines?

Another unexplained and undefended aspect of the vaccine law is the use made by the courts of the concept of cause. The courts treat evidence that a vaccine (or any drug) increases the incidence of a condition as proof that the vaccine causes the condition. Cause is usually proved only by an increase in the rate of the condition above the background rate in the period after administration of the vaccine. If the courts accept this as proof of cause (as the Department of Justice did with swine flu, for instance), then the compensated conditions will include those in the background rate, conditions that would have occurred anyway.

Even more troubling, cause is presumed when harm cannot otherwise be explained. The plaintiff proves he was fine until the vaccine was administered, and then he was not. Doctors testify that the vaccine must be to blame because they cannot detect any other cause. Liability in this situation will impose on the vaccine large costs for conditions that are, in fact, unrelated to the vaccine, particularly in the case of the pediatric vaccines, which are administered early in life to infants whose development may thereafter reveal previously latent and undiagnosed abnormalities.

Both *Johnson* and *Toner* are now on appeal (*Johnson* to the Kansas Supreme Court and *Toner* to the Ninth Circuit Court of Appeals), and their outcomes will be significant. But even if both verdicts are reversed, the first decade of this case law makes it reasonable to fear that some judges, acting out of sympathy for afflicted plaintiffs, will impose substantial liabilities on the manufacturers.

How Industry Is Responding

Reyes, the swine flu statute, and subsequent developments sent the industry a message. Perhaps *Reyes* really could be avoided by better warnings, but it might take decades of litigation to find out. A number of firms quietly stopped producing vaccines.

It is easy to minimize the importance of this exit. But under a hostile and unpredictable legal regime the principal competitive weapon for rival firms becomes not the quality of their product, research and development, or marketing, but how they price the risk of liability. Liability costs for vaccines now dwarf even the historic gross revenues of the industry. For instance, the DTP vaccine is administered three times to about 3 million children a year, at a wholesale price that was until recently about a dime a dose. One tort verdict can exceed that $900,000 in annual revenue. (The price is now $2.80.) The firms that remain in the industry are not necessarily those with superior technological competence or more efficient production techniques, but those willing to gamble against the trend of the case law.

Producing vaccines at a profit thus means, increasingly, staffing and operating a large, ongoing product liability defense and predicting accurately the outcome of highly unpredictable litigation. These incentives will often move production away from technologically superior and well-financed firms, which have the most to lose. It is not unimaginable that the vaccine firm of the future will consist solely of vaccine production facilities spun off into an underfunded corporation owned by highly entrepreneurial and litigation-hardened lawyers. Vaccines will become unavailable at any price if even such entrepreneurs conclude that charging prices high enough to justify the liability risk will simply stimulate the courts to impose increased liabilities. This remains a possible—though still unlikely—result.

Moreover, when only a single producer remains—as is now the case in the United States for such vaccines as measles, mumps and rubella, Sabin polio, Salk polio, and rabies—there will usually be only a single production facility. Vaccine production is an art, and vaccine production facilities can be disrupted by unexpected difficulties. For instance, in the fall of 1984, Lederle found that a batch of DTP did not meet standards and could not be marketed—an event that required the Advisory Committee on Immunization Practices to recommend reduced use of the vaccine.

Perhaps even more important, the threat of liability further attenuates the incentives and resources to innovate in an industry where incentives to innovate are already low because the product is only taken (at most) a few times. Only many years of mass marketing can determine whether a vaccine will have low-inci-

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dence side effects. If the courts are going to impose strict liability for side effects, it would wipe out any possible profit from even a fabulously successful (in a medical sense) vaccine. Thus, no producers have shown any serious interest in paying the costs of testing possibly safer pertussis vaccines. And though the popular press has carried frequent stories in the last two years about possible vaccines for AIDS and herpes, testing and obtaining regulatory clearance for such vaccines is not currently of interest to any potential producer. Those invisible non-litigants who would benefit from new vaccines are probably the most dramatic victims of the threat of product liability law.

From the consumer's perspective, the erratic liability law not only reduces the availability of existing and improved vaccines, but also reduces the incentives to take them. Open-ended liability raises the price of vaccines, which makes it difficult to maintain high rates of immunization. The increasingly dire risk warnings included with vaccines, and the melodramatic publicity that litigation creates, have similar negative effects. Unimmunized people, who benefit second-hand when their neighbors are immunized, are also badly served by the current state of the law.

Because the law is evolving on a case-by-case basis and because much of it remains the subject of vigorous professional dispute, the litigation costs are and will remain very high for the foreseeable future. With the outcomes so uncertain, it is very difficult for the parties to agree on a settlement figure. This is fine for lawyers, but not for their clients.

An Injection of Reform

Efforts to obtain reform legislation from the Congress have begun. In 1983 the National Academy of Sciences convened a Committee on Public-Private Sector Relations in Vaccine Innovation to study the organization and support of vaccine research, the adequacy of incentives for the commercial development of new vaccines, the delivery of both new and established vaccines to the relevant populations, and the problem of liability for and compensation of vaccine-related injuries. Its intensive study of the matter is due for release in July. A commission convened by the American Medical Association recommended in 1984 that a specialized and exclusive federal compensation system be created.

The American Academy of Pediatrics and a group of concerned parents jointly drafted a bill creating a compensation system, which was submitted in the last session of the Congress by Senator Paula Hawkins (Republican, Florida). After hearings on the bill, it has been improved by requiring an applicant for compensation to forgo a tort suit and by adding provisions limiting failure-to-warn liability and providing for the possibility of government liability insurance for the manufacturers. It has been introduced in this Congress as S. 827, again by Senator Hawkins, with Senators Orrin Hatch (Republican, Utah), Dale Bumpers (Democrat, Arkansas), and Spark Matsunaga (Democrat, Hawaii) as cosponsors.

On April 6 the Interagency Working Group on Vaccine Supply and Liability, chaired by the secretary of health and human services, called for major changes in vaccine liability law designed to ensure continued supply of all childhood vaccines. Specifically, it recommended eliminating punitive damages and limiting pain and emotional distress awards to $100,000.

Parents of children injured by vaccines vigorously oppose any limits of liability, but what they and their advocates overlook is that enormous public health *benefits* are at stake here, too. These benefits have been slighted by too many judges and juries with alarming consequences. Vaccine policies present difficult choices among less than perfect alternatives. Faced with an injured plaintiff, the courts are too prone to believe that the "other" choice, whatever it might have been, should have been preferred. In the case of vaccines, too many judges have proved to be poor scientists and incompetent regulators. Legislative correction is urgently needed. ■

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Harvest of Waste
The Marketing Order Program

Thomas M. Lenard and Michael P. Mazur

UNDER EXECUTIVE ORDER 12291, signed by the president on February 1981, executive branch agencies have to submit their rules for review to the Office of Management and Budget (OMB). Many agencies yearn to be excused from this review, but only one program of one agency has ever succeeded in getting Congress to give it an exemption. From the usual rhetoric in the debate over OMB's powers, you would think the exempted program would be some crucial venture in health, safety, or environmental regulation that commanded wide public and editorial support. But in fact Congress has chosen to give this special dispensation to one of the most blatant of all self-seeking special interest programs: the agricultural marketing order system.

Beginning in November 1983, Congress each year has used a legislative rider to prohibit OMB from spending any money to review marketing orders. Since 1980, Congress has also prohibited the Federal Trade Commission from monitoring marketing orders. Yet the underlying controversy will not go away. Since the 1970s, the marketing order program has come under ever-growing criticism from economists, reformers in federal agencies, consumer groups, and increasingly some regulated growers as well.

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Why Beer and Chewing Gum Cost More

Despite serious concerns about the system of marketing orders for milk, OMB concentrated its efforts on reforming the system of federal marketing orders for fruits, vegetables, and "specialty crops" such as hops and spearmint oil. There are now forty-seven such orders, covering crops valued, in all, at more than $5 billion annually. Kiwi fruits were recently added to the list.

The procedures governing marketing orders are set by the Agricultural Marketing Agreement Act of 1937. The secretary of agriculture at his discretion issues a formal rule establishing an order and defining its powers and

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procedures. The order must then be ratified by a referendum of producers. Thereafter, within the terms of the order, a special administrative committee representing primarily producer interests periodically develops implementing regulations which, if the Department of Agriculture (USDA) approves, are published in the *Federal Register* and take legal effect. These implementing regulations are the ones that OMB reviewed from 1981 until 1983 when Congress upset its kiwi cart.

The orders authorize the department to impose a variety of controls on request of the administrative committees. Some are primarily technical and have aroused relatively little controversy. Others severely restrict the flow of crops to market, curtailing supply and driving up prices. OMB's concerns focused on four of these supply restrictions:

(1) A *producer allotment* system forbids a producer from selling more than a fixed maximum quantity. The quantity is derived by assigning each producer an "allotment base" and multiplying it by an annually determined allotment percentage. The spearmint oil board, for example, maintained a total allotment base of 1,459,083 pounds of "class 1" oil for the 1983–84 marketing year. The board recommended (and USDA agreed) that 714,951 pounds, or 49 percent of allotment, be allowed to be sold in the 1983–84 season. Thus a producer could sell 49 pounds of spearmint oil for each 100 pounds of base he held.

Allotment orders by their nature prohibit new growers from entering the field except by first obtaining an allotment base, which ordinarily can only be done by buying it from an incumbent producer. Typically, incumbents obtained their allotment by virtue of having been in operation when an order was established. Only four relatively small crops now come under producer allotments—hops, spearmint oil, cranberries, and Florida celery—and only in the hops and spearmint oil orders does allotment base currently command a price above zero; in the other two orders output is not held below the free-market level.

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(2) *Market allocation* provisions shunt output from "primary" markets (typically produce sold fresh in stores or produce used domestically) to "secondary" markets (processed foods, exports, and nonfood uses). For example, for 1983–84 the walnut marketing board recommended (and USDA agreed) that 76 percent of the crop was needed to satisfy "domestic needs," the effect of which was to prevent the remaining 24 percent from being offered on the domestic market. (Instead it was made available for export.) Market allocation is used in four orders: almonds, filberts, walnuts, and raisins.

(3) *Reserve pool* schemes require all producers to place a specified portion of their crop into storage. (In some instances, they may satisfy this requirement by destroying the specified amount.) Later, all or a fraction of the set-aside may be released for unrestricted sale or for sale into a secondary market. Reserve pools are authorized in seven orders: tart cherries, almonds, walnuts, raisins, prunes, hops, and spearmint oil.

(4) *Prorates* limit the quantity of produce a handler may ship to primary markets during a particular time period, typically a week. For example, a USDA regulation published on October 12 of last year stipulated that growers could ship no more than 200,000 cartons of fresh California-Arizona lemons to market during the period from October 14 to October 20. Similar announcements are published weekly. The excess produce must be held for later shipment or sold to secondary markets.

Prorates are used in the three California-Arizona citrus orders, covering crops worth over $400 million at 1982 farm prices. Moreover, the citrus prorates are extended through the entire growing season, which means that, just as in the case of the market allocation orders, some of the crop is never allowed to reach the primary market. Incidentally, most marketing orders apply not directly to growers but instead to handlers—the intermediaries, sometimes part of grower cooperatives, who receive the crop from the growers, pack it, and market it.

A number of orders also authorize a minor form of volume control known as *shipping*

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holidays, under which shipments to the market may be restricted for brief periods, typically around calendar holidays. In addition, most marketing orders, including those with volume control provisions, set *quality standards* affecting the grade or size of the crop, and *container and packing standards*. They also authorize mandatory assessments on growers to fund *research and advertising*.

How Competition Withers on the Vine

All four major types of volume control deploy the legal powers of the government to manipulate supply in an effort to increase grower profits. Only in the producer allotment system is this cartel of the classic textbook variety, in which the cartel restricts the total amount sold. Under the prorate and market allocation systems, anyone may become a grower and may grow any given amount of a crop.

This does not mean that prorate or market allocation orders fail to raise the prices producers receive. It only means that they do so through price discrimination rather than output restriction. Economics textbooks show that it is possible for a cartel of producers to gain higher revenue by selling their product at different prices to different markets. To succeed in increasing their revenue, they should restrict supply and raise prices in the markets with less elastic demand, while transferring the excess to the markets with more elastic demand. For example, the western orange orders restrict sales of the fresh product in grocery stores, for which demand is relatively inelastic, and increase sales to orange juice processing, for which demand is elastic because processors can easily buy Florida oranges. The result of this price discrimination is that identical products are sold for different prices.

The prorate orders also achieve what economists call inter-temporal price discrimination. While all oranges of a particular variety mature at about the same time, they can be stored ripe on the tree for some months. The prorate enhances prices in the early months of the season by delaying early shipments. This practice also indirectly restricts the total supply of quality fresh fruit because some oranges deteriorate when they are held on the tree for extended periods.

Perhaps the most significant difference between the ordinary cartel and these price-discriminating marketing orders is that, in the latter case, production is artificially high instead of artificially low. Because the price-discrimination scheme yields higher average producer prices, existing growers find it profitable to expand their output, while new entrants begin growing the crop. This piles one inefficiency on another: not only are oranges diverted to juice when consumers would rather enjoy them fresh, but resources are unproductively diverted to growing juice oranges because doing so entitles a grower to share in the profits from fresh ones.

Reserve pools sometimes work to enforce price discrimination as well. This occurs because not all the crop held back in the reserve pool is always released later for unrestricted sale. Instead, some or all of it can be diverted into a lower-price secondary market or even destroyed, much as happens under the prorate and market allocation system, and resulting in much the same sort of price discrimination. The reserves simply serve as way stations to the eventual disposal of the diverted crop.

Although OMB's review program focused primarily on the four major volume-control provisions, quality standards also serve as a potentially important way of limiting supply. A quality standard that is set high enough to exclude products that consumers are willing and eager to pay for can artificially constrain the available supply of the product. In addition, since imports must meet the same standards as domestic crops covered by marketing orders, marketing boards can sometimes use quality standards to screen out foreign competition. (For an account of how the filbert marketing board tried to do this, see "Dispatch from the Nut Wars," Perspectives, *Regulation*, January/February 1982.) Thus, even if marketing boards lost the power to impose direct volume controls, they might turn to quality standards to accomplish the same goals.

In Search of an "Orderly" Market

The purpose of the marketing order system, according to the 1937 law, is to establish "orderly" marketing conditions. Although this concept is not well defined, either in the 1937 act

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or elsewhere, it must presumably have something to do with reducing the risk associated with market swings. The argument sometimes runs as follows: (1) Marketing orders help stabilize prices between good and bad crop years and during the season, which (2) allows growers to earn more stable and predictable profits, which (3) makes it cheaper to raise funds for planting, since potential investors are risk-averse. This lower cost of capital, passed on to consumers, outweighs any conventional welfare loss that may result from supply restriction. There are problems with all three links in this chain of reasoning.

First, there is no convincing reason to believe that marketing orders in fact stabilize prices, or even are usually meant to. It would be consistent with a stabilization objective to slow down the flow of crops to market in bumper-crop years but then take off the restrictions in years of normal or scanty crops. In fact, prorate and market allocation provisions are used in good and bad years alike—suggesting that their purpose is simply to raise prices, not smooth them out. (Incidentally, stabilizing prices would not in itself necessarily leave consumers better off, since they are unlikely to prefer a uniform high price to an alternation of high and low prices.)

Second, even if marketing orders did reduce fluctuations in prices they would not necessarily reduce fluctuations in grower profits. If prices held steady through good and bad years alike, producer profits would plunge in the bad years when they had little crop to sell. Allowing prices to gyrate, on the other hand, helps to stabilize profits by letting producers make up on unit profit some of what they are losing on volume and vice versa.

... stabilizing prices would not in itself necessarily leave consumers better off, since they are unlikely to prefer a uniform high price to an alternation of high and low prices.

If the orders did succeed in stabilizing profits, it is possible that more investment would be forthcoming, though it is unlikely that the effect would be very great, since most investors can already reduce their risks by diversifying their holdings. We may doubt, however, that the orders are guided by any intent of passing along such risk reductions in the form of lower prices to consumers. The producer allotment provisions actually forbid willing investors the opportunity to invest in new production on any terms.

It is often argued that fruits and vegetables must be given special regulatory treatment because they are perishable. True, perishable goods are often subject to seasonal and year-to-year price fluctuations, but such fluctuations are often predictable and need not represent any sort of market failure. Fresh asparagus, raspberries, and oysters are expensive or unavailable through much of the year, but producers make a profit on all three even without marketing orders. Hotel rooms are an example of an entirely unstorable (and often highly seasonal) commodity whose prices manage to clear without government help. Trying to smooth out the fluctuations by setting a "fair" uniform price for such goods throughout the year would probably deprive consumers of the benefits of the months of abundance, without succeeding in making the goods available during the months of scarcity.

It is often argued that fruits and vegetables must be given special regulatory treatment because they are perishable. ... [But] marketing boards have fought hard against innovations that would make their crops more storable.

Furthermore, most of the commodities subject to volume controls are in fact storable for relatively long periods, including both of the crops covered by binding producer allotments, hops and spearmint oil. But what is most relevant is that marketing boards have fought hard against innovations that would make their crops more storable. The lemon committee has been blocking the introduction of shrink-wrap technology that could make lemons storable for six months or more. In the milk marketing order program, which operates an elaborate price-discrimination scheme, USDA has blocked the introduction of a storage technology, reconstitution of milk, that

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would help to even out seasonal fluctuations in supply. (See "A Reconstituted Threat to the Milk Cartel," Perspectives, *Regulation*, May/June 1983.)

Storable crops should in general be held back in bumper years for use in seasons of scarcity, and growers and handlers of unregulated crops already have every pecuniary incentive to do so; it is the familiar process of speculation in hopes of higher prices. Reserve pools are meant to accomplish the same goal, but there is no reason to believe that the administrative committees that operate the pools are better able to determine the optimal amount and timing of storage than individuals with their own money at risk.

The Prorate Orders

The most detailed form of volume control is the prorate, which specifies how much product each handler may ship to the fresh market during each week of the season. The theory behind prorates is that, without centralized regulation, the uncoordinated decisions of individual producers would cause a glut at supermarkets one month, and a shortage the next, followed by another glut, and so on. During the glut, prices would be ruinously low, which would discourage all the handlers at the same time from shipping any more product. Shipments would drop precipitously, which in turn would lead to a shortage in which the only fruit available was that left over from the glut and decaying on supermarket shelves. The high prices during the shortage would prompt too many shipments, followed by a new glut, and so on in a vicious circle.

Exactly why this is a danger only for three crops is not evident. A vast array of other perishable items, including other fresh fruits and vegetables, seems to reach the consumer in good time without benefit of prorate. Sometimes it is claimed that citrus crops require special rules because they can be stored on-the-tree for several months after they ripen—as if this greater flexibility were especially likely to lead growers into suicidal errors. Other citrus fruits, however—such as limes, tangerines, grapefruit, and oranges from other states—come to market successfully without the use of season-long prorates.

It is worth noting that when the marketing orders system was established in the 1930s, fresh oranges and lemons were generally shipped by train and sold at auction markets or by commission agents. Growers sometimes found that the price they received when their fruit was finally sold was quite different from the price at the time of shipment. But this concern, whether or not it is relevant to the original rationale for the program, is out of date. Modern communications bring distant market information to growers very quickly, and today about 90 percent of the crop is sold at a price determined before shipment.

Whatever the effect of the prorate on week-to-week stabilization, the scheme has clearly not succeeded—in the case of oranges at least—in evening out the flows to the fresh market between one season and the next. For the six years ending in 1982, the year-to-year percentage swings in the supply of navel oranges to the fresh market were −23, −5, +54, +9, and −9. The corresponding figures for valencia oranges were +7, −24, +48, −26, and 0. It is always possible that the fluctuations might have been even greater without a prorate order, but it is evident at least that the prorate, at best, fell well short of its professed goal of stabilization.

The establishment of mandatory prorate systems for western citrus crops followed the failure of attempts by the dominant cooperative to enforce similar marketing restraints on a voluntary basis. Beginning in the 1920s, the California Fruit Growers Exchange (the predecessor of Sunkist, Inc., which still dominates the industry) tried to regulate shipments by its member growers to the fresh market. It was stymied, however, by "free rider" problems. Independent growers outside the cooperative could increase their profits by refusing to go along with the agreement and shipping all their crop to the high-price market. Members of the exchange, meanwhile, had an incentive to quit the cooperative and do the same thing. Predictably, the exchange found its share of the high-price market falling. When it began pushing for the establishment of mandatory prorate for oranges and lemons, it faced opposition from most of the independent growers—opposition that continues today.

Citrus growers and marketing board officials have at times been strikingly candid about

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the real purpose of the orders. In its 1969–70 annual report, the valencia orange board stated that the order it administers "is designed to aid growers in achieving maximum returns. . . . The basic means used to aid in maximizing returns is the control of the fresh oranges shipped weekly." Board officials have made no secret of the fact that they use econometric models of their markets to determine the revenue-maximizing allocation of the crop between different markets. In 1974 the California-Arizona Citrus League reported to the Cost of Living Council on the operation of the navel orange order:

> There has been developed through study of economic analysis of 17 years of navel marketing results, a regression equation which forecasts with remarkable and proven accuracy the level of regulated shipments which will produce the maximum on-tree dollars for a given crop. . . .

In recent years, prorate supporters have become more circumspect in their language, usually claiming that the system is operated for the benefit of producers and consumers alike. Nonetheless, the boards go on using the revenue-maximizing models in making prorate decisions.

The Effects on Quality

Marketing orders are most often involved in public controversy when crops covered by such orders are deliberately destroyed or used as cattle feed. In 1981, a bumper year for California oranges, an outcry arose when photographs of oranges rotting in parking lots appeared in the press. Prorate supporters sometimes claim that the produce involved in such cases is below the quality acceptable to the fresh market, that virtually all fruit of high enough quality to be consumed fresh is eventually allowed onto the fresh market, and that only substandard fruit is being processed into juice or fed to cattle.

If this is true, it implies that the average quality of California-Arizona citrus has been declining steadily, since less and less of the crop has been found worthy of shipment to the fresh market since the establishment of mandatory prorate. In the 1920s and 1930s, before the mandatory system, more than 90 percent was shipped fresh; the figure has fallen below 70 percent in recent years. What is ironic is that West Coast oranges are in fact not well suited for processing into juice. Navel oranges, in particular, produce marketable orange juice only when combined with varieties of orange better suited to juice production.

Sales of California-Arizona navel oranges more than doubled in the past two decades, as the last column of the accompanying table shows. This expansion was stimulated by a variety of factors, including low-cost irrigation water, the tax advantages of investing in citrus groves, and of course the prorate itself, which artificially increased the profitability of entering the market. In order to keep this increased output from depressing fresh prices, the marketing board had to shunt a larger and larger fraction of the crop into secondary markets. This trend is apparent in the table's first column, which shows a steady and marked decline in the percentage of the total crop that was sold to the domestic fresh market. Valencia oranges and lemons exhibit similar patterns.

Since the stated purpose of the prorate is to maximize grower returns, it may seem surprising, at first, that some member growers vehemently oppose each of the three western citrus prorates. As they see it, the prorate is meant to increase the income of the *average* grower not only at the expense of the consumer, but also at the expense of the grower that

DISPOSITION OF
CALIFORNIA-ARIZONA NAVEL ORANGES
(annual averages)

	Domestic Fresh	Export Fresh	Processed	Total
1963–68				
Carloads	23,622	1,045	5,517	30,833
Percent of total	76.6	3.4	17.9	100
1968–73				
Carloads	28,728	1,607	10,045	41,719
Percent of total	68.9	3.9	24.1	100
1973–78				
Carloads	34,272	3,559	12,484	51,560
Percent of total	66.5	6.9	24.2	100
1978–83				
Carloads	39,425	5,128	19,804	66,041
Percent of total	59.7	7.8	30.4	100

Note: Each figure represents an average over five seasons; that is, 1963–68 refers to the five seasons 1963–64 through 1967–68 inclusive. The first three columns do not sum to the fourth column, which also includes other minor uses such as charitable donations. Oranges that are grown but not harvested are not included in any of the four columns of this table.

Source: U.S. Department of Agriculture.

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could prosper by producing better quality fruit or by marketing it more effectively. In other words, it makes "the strong carry the weak." They point out that since the proportion that growers and handlers may sell to the lucrative fresh market is fixed by fiat, not competition, they cannot hope to capture a larger share of the fresh market by improving the quality or marketing of their crop. The system protects the growers of inferior fruit, but only by removing the major incentive to improve fruit quality. Thus even if some of the parking-lot oranges were substandard, their low quality might be partly due to the prorate system itself. (Another reason for low quality is that the orange prorates tend to prolong the marketing season beyond what it would be under a free market, so that more oranges deteriorate on the tree.)

Wasted Fruit, Wasted Money

Less publicized, but perhaps more significant, is the waste that occurs when fruit is grown but never harvested. This waste is most apparent in the case of the lemon order, which encourages up to 25 percent of the crop to be left to rot in the orchard under official sanction. Lemons that are "certified on tree" never leave the orchard, but still entitle the handler who controls them to a bigger prorate share just as if they had been picked and delivered to him. It pays the handler to have crops he controls certified on tree whenever secondary market prices (driven down by the effect of prorate) fall below the costs of picking and delivering the crop to the secondary market. In 1982–83 the volume of certified-on-tree lemons was about 23 percent of the total crop and actually exceeded the total volume of lemons sold to the fresh market.

In 1982–83 the volume of lemons [left to rot] was about 23 percent of the total crop and actually exceeded the total volume of lemons sold to the fresh market.

The orange prorates establish similar incentives to abandon fruit in the orchard, but use a different system under which a crop need not be officially certified in order to be profitably abandoned. Hence we have no data on how many oranges are left to rot in the groves. Dissidents have alleged that some orange groves are maintained for the sole purpose of entitling the affiliated handler to a larger prorate; the crop, they claim, is never harvested and was never intended to be.

In economic terms, the harmful effects of the prorate include the wastage of fruit, the distortion of consumers' decisions between fresh and processed fruit, and the costs of overproduction. It is not possible to measure with great accuracy how much these inefficiencies cost the economy. To do so properly, we would have to know by how much the system has driven up prices in the primary market compared to the secondary market. It is easy enough to measure the gap between the two prices, but much harder to know how much of that gap is due to price discrimination and how much to the difference in quality between the fruit going to the two markets. Economist Sheldon Kimmel of the Department of Justice has dealt with this problem, using a procedure that computes a lower bound for the costs of prorate. He calculates that in recent years the value of resources wasted in unnecessary processing as a result of the navel and valencia orange prorates was $72 million annually in 1983 prices.

One quantifiable social cost of the lemon prorate is the waste of resources that have been used to produce the lemons abandoned in the orchard. Gary Benoit of the University of California-Riverside and Roger Fox of the University of Arizona have estimated the costs of producing lemons in the 1982–83 season at $2,672 per acre. Multiplying this by 16,824 acres (23 percent of the total acreage covered by the order in 1982–83) indicates that the cost of producing the abandoned lemons was $45 million. As in the case of oranges, this figure represents only a portion of the welfare costs of the prorate.

Reformers in the Pits

Economists have been eager to reform marketing orders for a decade now. Early interest came from the antitrust agencies, and although the FTC was rewarded for its efforts by a statutory

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ban on doing research in the area, the Justice Department continues to take an interest in the subject.

During the inflationary 1970s, when many anti-competitive programs began to come under pressure, the Cost of Living Council succeeded for a while—until it reportedly lost White House support—in getting more navel oranges released to the market than the marketing board had recommended. Later, at the direction of President Gerald Ford, an interagency task force chaired by USDA investigated marketing orders and found that a number of them had "price enhancing" effects or "potential." Inflation fighters in the Carter administration also addressed the subject, but their major initiative was an unsuccessful effort to end the effective ban on reconstituted milk under the milk marketing order program.

When the Reagan administration came along, change again seemed to be in the wind. The Presidential Task Force on Regulatory Relief, chaired by Vice President George Bush, quickly targeted marketing orders for review and possible reform. In response, USDA undertook a fairly detailed review of the marketing order programs. While its report, published in November 1981, did not reach conclusions on the overall desirability of marketing orders, it recognized the efficiency costs of provisions that restrict supply and it identified volume-control provisions as the worst culprits in creating economic inefficiency. Seven specific orders were named as likely contributors to inefficiency: hops, spearmint oil, California lemons, navel oranges and valencia oranges, and perhaps walnuts and filberts.

As a result of its review, USDA announced new marketing order guidelines on January 25, 1982. While the guidelines were in many respects ambiguous, they did suggest that USDA intended to make pro-competitive changes in the way it administered the orders. But after a contentious year of working with the guidelines, it was clear to most observers that virtually no reform had taken place. Only two relatively minor marketing order decisions were altered, both as direct results of OMB's intervention. The budget office blocked a proposed increase in quality standards that would have kept out imported filberts and thwarted the tart cherry board's 1982 proposal for a 20-percent reserve.

The Reagan administration's position on marketing orders was still unclear. And when the subject came before the full cabinet in the spring of 1983, the result was again inconclusive: a "reaffirmation of administration support for the marketing order concept" combined with a commitment "to rely more fully on free market forces." In addition, Secretary of Agriculture Block announced three reforms of volume-control orders: (1) prohibitions on new entry in allotment programs would be phased out over five years; (2) market allocation and reserve pool programs would have to release to primary markets a quantity equal to at least 110 percent of recent years' sales in those markets; and (3) USDA would provide for "greater flexibility" under prorate programs. While the first two of these reforms may seem precise, OMB and USDA were soon embroiled in a dispute over the interpretation of both. The dispute ended when Congress ejected OMB from the marketing order field.

If USDA were to follow through on Secretary Block's commitments—and it has ample opportunity—significant reform could still be accomplished. The department, however, is letting some valuable opportunities slip by. After extensive hearings on the navel and valencia orange orders, it issued a decision last year that left the prorate little changed. At about the same time the department approved the establishment of a new marketing order for kiwi fruit. Neither of these decisions encourages optimism about the outcome of hearings held last year on the lemon and hops orders. In late January 1985, on the other hand, the department overruled the objections of the Navel Orange Administrative Committee and suspended the navel orange prorate—a virtually unprecedented step. While this action came as a response to an unusually severe shortage, it probably would not have happened without the policy debate of the previous four years.

For the time being, at least, the OMB review process seems to have done its worst (or best). The next impetus for reform may be legal challenges to the way in which the department approves marketing order regulations. The courts may be reluctant to overturn procedures that have been in use for almost fifty years. But some branch of government will have to take the initiative if this Depression Era relic is to be finally relegated to the history books. ■

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The Great Satellite Shootout

Peter F. Cowhey and
Jonathan D. Aronson

WHEN SMALL COMPANIES attack large monopolists, grand politics may result. AT&T's public monopoly began to crumble after pipsqueaks like Carterfone and MCI used legal loopholes to break into the equipment and long-distance markets. Other firms quickly provided the financial muscle to expand these breaches.

Intelsat and its U.S. affiliate, Comsat, have ruled international satellite communications for two decades. Since March 1983, however, they have been under attack from a pack of aspiring competitors led by a small company called Orion, which has no satellites and no known customers. This fall the Federal Communications Commission (FCC) will announce the victor of this brief, but bitter, regulatory battle. Every indication suggests that the new policy will undercut Comsat's position and end Intelsat's monopoly. What has provided the political impetus for this move toward greater competition? And what new policy questions will surface as a result?

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The Rise of Intelsat and Comsat

The International Telecommunications Satellite Corporation, Intelsat, is a child of U.S. diplomacy. In the early phases of space exploration, American policy makers urged the creation of a single international satellite communication corporation, jointly owned and managed by all of the governments of the world. The new enterprise would demonstrate America's commitment to the shared peaceful use of outer space, guarantee adequate transmission facilities to meet rapidly growing demand, provide lower costs by permitting large economies of scale, prevent wasteful duplication of ground facilities or poor utilization of the frequency spectrum, and provide universal service. At the same time it would help developing countries by equalizing rates on each individual service for users with high and low volumes of traffic.

As a preparatory move, in 1962, Congress created the Communications Satellite Corporation (Comsat). The corporation is privately owned, but the U.S. government appoints three of its fifteen directors. Comsat was created as a "carrier's carrier," the sole link between U.S. carriers and international satellite traffic, al-

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though the enabling legislation left open the possibility that the President and the FCC could authorize other new systems if that were in the national interest. Because of the company's monopoly position, the FCC instructed Comsat to make its circuits available to all American carriers and, until 1982, forbade it from providing direct domestic service. The legislation also directed Comsat to negotiate with other governments to set up the single global system that became Intelsat.

Intelsat was established in 1964 by an interim agreement among eleven members; until 1979 it was managed by Comsat. Its growth over the years has been impressive. Technological innovation made it possible for circuit capacity for the Atlantic region to rise an average of 35 percent a year from 1965 to 1982, even as rates were reduced a dozen times in twenty years. The consortium now has 109 members, served by sixteen satellites in geosynchronous orbit above the Atlantic, Pacific, and Indian Ocean regions. Most of the traffic it carries is international, but about 20 percent consists of domestic service within twenty-six countries.

The enterprise is owned and funded by its members in proportion to their share of total Intelsat traffic; Comsat's current share is 23 percent. The United States has an even stronger role in the satellite market than Texas had in the oil market before 1960, because it is the major center of consumption as well as production. Roughly half of all Intelsat traffic originates or terminates in the United States. Only the U.S. traffic is dense enough to attract significant investment and expansion by a competitor, and only the U.S. routes provide major opportunities for driving down unit costs per message through economies of scale.

Intelsat remains overwhelmingly dependent on phone traffic and on the transatlantic market for its prosperity. As the accompanying table shows, about two-thirds of its circuits serve the Atlantic region. Comsat's business is even more lopsidedly concentrated on the transatlantic routes. In 1983 about 82 percent of the half-circuits that Comsat rented from Intelsat served the Atlantic region. Any policy change that undercuts the Comsat/Intelsat monopoly for service between the United States and Europe will significantly alter the market as a whole.

COMPARISON OF SUBMARINE CABLE AND INTELSAT CAPACITY, 1965–82
(number of circuits)

Year	Atlantic Capacity			Atlantic as % of All Intelsat [c]
	Cable [a]	Intelsat [b]	Total	
1965	2,006	240	2,246	100.0
1968	3,454	1,513	4,967	62.5
1971	9,499	6,277	15,776	59.9
1972	10,579	10,133	20,712	63.3
1976	24,389	13,054	37,443	65.3
1979	38,089	16,442	54,531	64.5
1982	44,509	42,253	86,762	66.0

a Systems of at least 500 miles in length.
b Estimated.
c Percentage of all Intelsat circuits.

Source: Dale N. Hatfield Associates, *Issues in International Telecommunications Pricing and Demand*, report prepared for the Orion Satellite Corporation, November 27, 1984, p. 23.

Cracks in the Dike

Despite Intelsat's rapid growth, it has run into a number of problems. Intelsat I had 240 circuits and one TV channel while Intelsat V has 12,000 circuits and two channels. However, the capacity of undersea cable has also grown rapidly, as the table makes clear. And the combined growth of satellite and cable has made surplus capacity one of Intelsat's chief economic problems. Even though the consortium carries approximately two-thirds of all transoceanic telecommunications traffic, its circuit utilization rate averaged only 49.7 for 1981–83 after a new transatlantic telephone cable came on line and the world recession slowed demand growth.

Critics attribute this surplus capacity in part to Intelsat's technological preferences. The consortium prefers to launch the high-capacity satellites permitted by new technology, even if the added capacity overshoots the level of current demand. Moreover, Intelsat uses low-power satellites, which require large, expensive earth stations. The alternative, used in many domestic markets, is the high-power satellite that can transmit directly to small dishes at customers' premises, thus bypassing large ground stations and local phone connections, which (according to both Intelsat and Orion) account for 90 percent of the cost of transatlantic calls. Intelsat's design, in other words, hinders direct service to customer premises, a major new market.

A second Intelsat problem involves the incentives for bypass. The consortium "rate averages" a given service across high- and low-volume users, holding down rates for low-vol-

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ume developing countries by making major industrial countries pay more. Some critics have questioned the value of this subsidy to the beneficiaries. Many of the low-traffic-volume countries that are subsidized are not poor. Moreover, critics say, the major factor that causes cost to vary among users is the cost of on-the-ground equipment. Intelsat's reliance on large earth stations (and its pricing of services to low-capacity stations) makes it uneconomic for the consortium to serve many small users in developing countries, one of the system's original intended markets.

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In any event, the subsidy gives many of Intelsat's larger user-members a financial incentive to bypass the global system and operate their own alternative facilities. This incentive is strongest for services connecting high-volume users, where Intelsat's charges are higher than its true costs. A further incentive for bypass, according to critics, is that Intelsat does not offer efficient "customized" services, such as high-speed data transmission and sophisticated video transmission such as teleconferencing, that primarily serve the internal needs of large organizations. These customers can profit from the efficiencies of a network that serves specific sites instead of linking all conceivable locations.

In any event, the subsidy gives many of Intelsat's larger user-members a financial incentive to bypass the global system and operate their own alternative facilities.

To fend off bypass efforts by member countries or others, Article XIV (d) of the Intelsat agreement permits member countries to operate other satellites for "international public telecommunications services" *only* if the satellites are technically compatible with Intelsat and do it no "significant economic harm." The Intelsat Board of Governors has approved only five regional satellite systems outside of Intelsat to date. They are the Arabian Satellite Communications Organization (Arabsat), the European Communications System (ECS), the Palapa-B system (which serves Indonesia and some of its neighbors), the hookup of the Soviet Intersputnik system with Algeria, and transmission from U.S. domestic satellites to Canada and Bermuda.

Intelsat's own consultants concede that the criteria used to assess "significant economic" harm are muddled. For example, the decision approving the European Communications System (otherwise known as Eutelsat) apparently held that the system would not harm Intelsat because Europe's postal, telephone, and telegraph ministries (PTTs) declared that they would not use satellites at all if they could not put up their own system! But Intelsat officials argue that the European case involves relatively small flows of traffic. For future bypass requests, they incline toward a stricter assessment of "significant harm" based on the cumulative impact of applications. Intelsat successfully discouraged, for example, Indonesia's plan to use its Palapa-B satellite to form a regional satellite news system.

Orion Rising

On March 11, 1983, a new firm, Orion Satellite Corporation, petitioned the FCC for permission to launch a transatlantic satellite service. Orion proposes to establish a service aimed at a particular market niche: providing "customized" services to private customers that have enormous flows of communications within their own organizations. Individual users would buy or lease transponders from Orion, and then route traffic over Orion's satellite to their own receiving facilities. The new enterprise would be a sort of global communications condominium; it would not offer what is called public "switched" service, in which subscribers can call other unrelated subscribers. (The telephone system is the model of such "switched service.") Applications from four other companies quickly followed Orion's.

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Orion is a small company. Its co-founders are Thomas McKnight, a former FCC attorney and Office of Telecommunications Policy staffer, and Chris Vizas, a veteran congressional staffer. It shares a suite of offices in a fashionable Washington office building with other firms. No one knows whether it has the financial resources to launch a satellite. It has no set of research labs or major customers that an outsider can easily identify. But the United States is accustomed to small entrepreneurs in big technological markets, so many in Washington give Orion the benefit of the doubt. If it does have powerful backers, they might find it advantageous to remain hidden.

In any event, Orion's strategy is a textbook example of how to play the regulatory game in the United States. The firm's young executives have used their intimate understanding of regulatory politics to gain the attention of key officials and members of Congress. Their strategy reflects recognition of three key principles of regulatory reform. First, a push for international deregulation acquires maximum political impetus if it immediately follows the deregulation of a domestic market. Second, legislators would rather signal their intent and leave the initiation of new policies to the executive branch than make the hard regulatory choices themselves. Third, legislators prefer incremental deregulation to abrupt change. In particular, congressional intervention works to limit the scope of the immediate decisions, to tailor reform to attack scapegoats, and to leave ambiguous the ultimate changes spawned by the immediate choice.

Assaults on regulation in the international market are generally precipitated by deregulation in domestic markets. After all, if competition is beneficial at home, why should global monopoly be tolerated?

Assaults on regulation in the international market are generally precipitated by deregulation in domestic markets. After all, if competition is beneficial at home, why should global monopoly be tolerated? Major customers hope to extend the efficiencies achieved at home to their international operations, and domestic producers are often eager to extend the gains or mitigate the losses from new competition at home by seeking new opportunities abroad. With the deregulation of domestic telecommunications under way, it was therefore not surprising that a number of bills to deregulate the international telecommunications markets were introduced in Congress in 1983. The time was right for "international reform": Orion's co-pilots had correctly gauged the favorable political tailwind.

But favorable sentiment does not always produce legislative action, and the second element of Orion's strategy takes advantage of this fact. Congress hates being blamed for foreign policy failures, in part because they produce devastating press. So on regulatory issues that have big international implications, lawmakers prefer to retire prudently from the front battle lines. Members of key subcommittees will introduce legislation with no intention of pushing it to passage, their purpose being to signal their preferences to regulators and to win political support from interested parties. The burden for concrete action, however, is on the executive branch. Regulatory reform is thus most likely when the White House favors it and the regulatory agencies have the power to initiate it on their own. Again, Orion correctly recognized that these factors favored its chances.

The third element of the strategy—be incremental—was reflected in Orion's determination to keep the decision narrowly focused. Implicitly, Orion characterizes its challenge as applying competitive discipline to an outdated, inept middleman, Comsat, while simultaneously stimulating selective housecleaning at Intelsat. Orion argues that it will serve a vigorous but narrow market that stands largely untapped by the Intelsat system and that its application conforms perfectly to the Intelsat agreement.

Orion's original application tiptoed around Article XIV (d)'s requirement that new satellite systems be coordinated with Intelsat by claiming that Orion intends to offer not "public" but rather "specialized" communications as defined under Article XIV (e). In other words, Orion's clients would not link their internal communications systems to public phone facilities. Orion would therefore be serving a

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market not covered under Article XIV (d). Accordingly, though requiring it to engage in technical coordination with Intelsat would be okay, it should not have to meet the "non-injury test."

For good measure, however, in an argument reminiscent of the original MCI attack on AT&T's long-distance monopoly, Orion also argues that it would create a new market, not divert traffic from the old one. Orion's individual users could configure their circuits to their special needs without using local phone networks. Because Orion would be tapping a market not available to Intelsat, it would not cause "significant harm." Orion carefully disassociates itself from the request of a more recent applicant, International Satellites, Inc., for permission to enter the market for switched international calls—although even ISI has offered to forgo serving switched international calls from AT&T for several years to protect Intelsat.

Orion has every reason to be optimistic. Congress and the executive branch have been giving off all the right signals. The FCC deregulated the domestic satellite market in 1970. In 1981 it allowed U.S. domestic satellites to serve Canada and Bermuda under special circumstances. That same year Congress made the FCC responsible for promoting competition in the international "record carrier" (telex and telegram) business. In 1982, the FCC ruled that AT&T and the traditional international record carriers could compete in each other's markets. Then, in 1983, the House and Senate Commerce committees both reported favorably on bills for more sweeping deregulation of international satellite communications.

These bills spurred on the reformers in the executive branch. In 1984 the FCC revoked a longstanding rule guaranteeing Comsat 50 percent ownership of all U.S. ground stations. And congressional leaders are now criticizing the FCC's "proportional loading rule," which forces common carriers to balance their use of international cable and satellite facilities. If the rule is abolished, the planned 1988 opening of a new transatlantic fiber optic cable with enormous transmission capacity for both voice and data (and the possible construction of yet another fiber optic cable to provide customized services like Orion's by 1989) will ensure a competitive scramble between satellite and cable systems. Amidst this groundswell, Orion's petition merely seems to ask the FCC to go one tiny step further.

Comsat and Intelsat Respond

Comsat and Intelsat have counterattacked in a big way; Intelsat alone spent $2 million on lobbying last year. The case against Orion rests on four main grounds.

First, Intelsat and Comsat question the credibility of the potential competitors. They speculate that most would-be entrants would never manage to launch a satellite even if they won government approval. Most have neither the $250 million needed to launch a system, nor the technical expertise to attract the money. Among several new applicants, only RCA is a likely exception: it could modify a satellite it now has slated for the domestic market to reach international markets.

Second, Intelsat insists that the new system would constitute public telecommunications, not a private system as Orion contends, and would therefore require coordination to avoid economic damage to Intelsat. Orion's distinction between private and public services may conform to U.S. domestic law, but in the international arena *any* sale of commercial services is considered "public." Moreover, modern technology further blurs any practical distinction between "public" and "private" communications. Large corporations use private branch exchanges (PBXs) as switchboards. A PBX in Chase Manhattan's New York offices could, for example, take an incoming call from one of the bank's European branches over a leased Orion satellite circuit and switch it onto the local phone system in order to terminate the call at a customer's factory in Albany. Regulators may try to forbid such "leaking" from private circuits to the public phone system, but PBX technology makes evasion easy. Orion's presence in the market would inevitably tempt major users to try it.

Third, Intelsat contends that it would suffer significant economic injury from Orion and its colleagues. The demand for customized satellite communications is smaller than Orion suggests, and adequate facilities are already available. Data traffic and teleconferencing would not be enough to sustain new entrants, which would proceed to siphon off phone and video business from Intelsat. Even the loss of

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corporations' internal phone calls would be costly, considering that Intelsat's unused capacity averaged about 30 to 50 percent over 1981–83 (depending on when and how it is measured). Intelsat's consultants conclude that if the consortium loses its monopoly, the costs for using its satellites will rise by 15 to 36 percent.

Finally and most decisively, Intelsat and Comsat claim that, as the children of U.S. diplomacy, they deserve diplomatic support. The Intelsat agreement calls for a single commercial system. Orion's entry would change the rules of the game unilaterally: it would render untenable the service-by-service average rates that benefit (by Intelsat's calculations) some sixty other nations, and it would threaten the enormous markups that most PTTs, especially those in developing countries, now charge for the use of Intelsat's services. Indeed, Intelsat's management rallied a unanimous vote opposing the Orion initiative at the October 1983 meeting of the Assembly of Parties in Washington—triggering concern within the U.S. foreign policy establishment.

On top of all this, Intelsat's defenders say, foreign PTTs would refuse to accept service from Orion and the others, so that the new entrants would call on the State Department for help. This would draw the United States into contentious and ultimately fruitless international economic negotiations. When several U.S. carriers negotiate with a single foreign national phone monopoly, the monopoly would have the catbird seat. It could play the U.S. carriers off against each other to extract maximum benefits for itself. In the end deregulation would simply reshuffle benefits within the satellite communications business without aiding the consumer.

Yet Orion's case with the U.S. government remains politically strong. The U.S. government need go no further in helping the new entrants than the usual representations it makes for U.S. businesses operating abroad. Also, Intelsat has convinced no one that a decision to license Orion would *in itself* destroy the existing system. Even Comsat admits that at most one or two new satellite systems are likely to be launched if approval proceeds. If any party suffered serious losses from that, it would be Comsat; and Comsat is a U.S. problem, not an international one.

By early this year Intelsat had conceded political defeat on the issue of Orion's entry. Its new goal is to minimize the damage by several means.

First, it wants the United States to sponsor an amendment to the Intelsat agreement that would give the consortium the discretion to charge different prices for the same service instead of rate averaging. Intelsat argues that only the thorough rate reorganization that such an amendment would permit will allow it to compete effectively. In the meantime, the consortium recently began marketing its Intelsat Business Service, which caters to the market targeted by Orion. Second, Intelsat emphasizes that Orion would have the capacity to carry public switched calls as well as private traffic. The consortium's objective in raising this charge may be to stiffen political and regulatory resolve against letting Orion carry switched service at a later date. Third, Intelsat is quietly distancing itself from Comsat. It supported the FCC decision to strip Comsat of its guaranteed equity in earth stations. More recently, it hinted that it favors authorizing direct access to its system by other carriers that wish to bypass Comsat. After all, the United Kingdom already allows two companies to have direct access to Intelsat: British Telecommunications and its officially designated competitor, Mercury.

Comsat, for its part, has a dramatic response in reserve: it may seek authorization to launch its own satellites to compete against Intelsat if stripped of its present monopoly on direct access. That is not the only way Comsat has been striking out on its own. For a decade the company has been trying to diversify into related fields. In 1973 it started Comsat General to provide design and consulting services to national satellite systems. In 1976, with Intelsat's permission, it began launching a series of navigation satellites (Marisat), as well as satellites to serve the domestic market (Comstar). And now it is starting specialized service networks for NBC, Holiday Inn, and other clients. Some if its ventures have been spectacular failures. It sank large amounts into a direct broadcasting service that is now on hold. And it lost substantial sums on a venture called Satellite Business System before selling its investment to its partners. Furthermore, AT&T may soon launch its own satellites, depriving Comstar of its main customer.

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Despite the growing rift between Comsat and Intelsat—a rift that plays right into Orion's hands—the joint lobbying effort to defend the current system continues. Comsat and Intelsat have tried two tactics in this lobbying war: exploiting turf fights within the executive branch and appealing to sympathetic congressional committees.

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Who's in Charge?

The Washington titans of foreign and regulatory policy have grappled with the Orion application for more than two years. The secretaries of commerce and state asked the FCC on April 6, 1983, to delay action until a Senior Interagency Group on International Communication and Information Policy (SIG), co-chaired by State and Commerce, could determine whether alternative satellite services were in the "national interest" as provided for in the Communications Satellite Act of 1962.

SIG's major participants reached a consensus in favor of competition fairly easily. The Defense Department and the Central Intelligence Agency, for example, sought only assurances that the choice would not impair defense communications. The U.S. Trade Representative took a low profile after Ambassador William Brock declared his support for Orion as a symbol of the country's commitment to freer trade in services. But in Washington, turf is sacred and process is never sacrificed on the altar of substance. And a classic turf fight soon developed between the State Department and the Commerce Department's National Telecommunications and Information Administration (NTIA).

Heading one side was Ambassador Diana Dougan, the telecommunications coordinator for State, who had excellent connections in the White House and more affinity for deregulation than many diplomats. On the other was the new Assistant Secretary of Commerce David Markey, who was in the midst of rejuvenating NTIA when Orion's application became an issue. Both sides favored freer entry into the market. The major issue was whether Intelsat should be allowed to use aggressive commercial countermeasures to retaliate against new entrants, and specifically whether Intelsat's charter should be amended to allow it more flexibility in cutting prices to meet the competitive challenge. NTIA opposed restraining Intelsat's fair competitive responses. Citing lessons learned in the deregulation of the domestic U.S. telephone market, it argued that the success of competitors was less important than the efficiency of pricing and service.

The State Department maintained that Intelsat's current operating authority already gives it enough pricing flexibility. For example, State said, when Intelsat leases circuits to new U.S. customers it routinely defines the new service in such a way that no developing countries can qualify, thus eliminating the need for a subsidy. In fact, State contended, the consortium could repackage its older services in a similar manner to end subsidies if it wanted. State worried that what Intelsat really wants to do with new pricing flexibility is to funnel cross-subsidies to those services that compete with Orion. NTIA disagreed, arguing that relying on the loopholes in its current authority would not give Intelsat the full pricing flexibility it needs to be fully competitive and best serve its customers. NTIA also believes that it is possible to prevent abuses of cross-subsidization.

State has responded that for the United States to sponsor flexible pricing might rally foreign opinion against Orion, since the effect of such flexibility would be to end subsidies currently paid by U.S. consumers. At present, the weighted voting system used by Intelsat's Board of Governors gives the United States a good opportunity to block an adverse finding by the board regarding the Article XIV (d) consultations concerning Orion. But sponsorship of a pricing amendment—even though Intelsat's management has pledged to cooperate with such an initiative—might provoke the often somnolent Assembly of Parties, which allots one vote to each member, to take adverse action on the Orion consultation decision.

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On November 28, 1984, President Reagan determined "that separate international communication systems are required in the national interest," but promised that the United States would "consult [i.e., coordinate] with Intelsat regarding such separate systems as are authorized by the Federal Communications Commission." On January 4, 1985, the FCC began to evaluate the new applicants.

Secretaries George Shultz and Malcom Baldrige carefully highlighted their points of agreement, while downplaying contentious issues, in a letter to Chairman Mark Fowler of the FCC sent at the time of Reagan's decision, and then in a SIG "white paper" of February 1985. First, they said, the FCC should authorize new international satellite facilities only for "customized" services, not for services involving the public switched network. The white paper acknowledged that some illegal "leaking" from private to switched service might occur, but argued that a volume sufficient to harm Intelsat would be detectable and subject to correction. Second, permission to enter should be contingent on the entrant's first gaining authorization for service in at least one foreign country and the subsequent completion of the Intelsat consultation process under Article XIV (d). (SIG insisted that the Intelsat decision on coordination would not bind the United States.) Third, the FCC should consider allowing U.S. commercial users and carriers to bypass Comsat on customized services and have direct cost-based access to Intelsat. (This issue was a special priority of NTIA's that State considered less important.) Fourth, SIG reaffirmed the U.S. commitment to Intelsat.

In the meantime, Congress has been stirring. Intelsat's congressional champion, Representative Don Bonker (Democrat, Washington), introduced a budget rider this spring providing, *inter alia*, that Intelsat's decisions on coordination be binding on the United States and that State be required to sponsor an amendment to the Intelsat agreement to authorize route-by-route pricing. The House passed Bonker's rider on May 9, 1985, but only after it was significantly rewritten amid intense bargaining. Among other things, the final version endorses increased competition, deletes the binding character of Intelsat's decision on coordination, and leaves State with greater latitude concerning its sponsorship of an Intelsat amendment on pricing. However, it also gives Congress a last chance to act by requiring that State must respond to any negative Intelsat coordination vote by informing Congress on how it plans to limit the diplomatic damage at least sixty days before sending its final approval to the FCC.

Even if the Intelsat coordination goes smoothly, the State-Commerce paper was silent about subsequent diplomatic tactics. U.S. diplomats must still decide (1) how hard to press the case for entry to foreign markets by U.S. satellite systems and (2) how to prevent foreign PTTs from playing off the U.S. systems against each other when they bid for "landing rights" in those countries. The most closely analogous case of this sort before Orion was the U.S. effort to secure increased competition in the North Atlantic airline market. Breaching united European opposition, however, required a combination of vigorous bilateral diplomacy and the threat of withdrawing U.S. antitrust immunity from International Air Transport Association. And although Intelsat's defenders have argued that the United States wasted its diplomatic energy in this case, the results have benefited transatlantic air travelers.

Significantly, the political process has handled these issues in ways closely conforming to the strategic principles that Orion recognized when it started the ball rolling. Congress has underscored its support for SIG's philosophy of "incremental" and "evolutionary" change, but now that serious choices are at hand, it is retreating to its oversight role. Even if the Senate does not back the House's amendment, the congressional pressure almost certainly will force the State Department to assist Intelsat's management on the flexible pricing issue.

Winners and Losers

In the end, the balancing of political interest in Washington has led to a surprising outcome. Both Intelsat and Orion have won, while Comsat has lost. The United States technically has upheld the Intelsat agreement. It has barred new entrants from providing international switched service and has thereby protected most of Intelsat's market. It will also support the flexibility Intelsat needs in order to become a more effective competitor. So Intelsat should not fare too badly in practice.

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More important, the United States has recommitted itself in principle to the welfare of Intelsat during this decade. In many ways Intelsat has successfully positioned itself as the international counterpart to the Bell Operating Companies under domestic regulation. When faced with the threat of bypass, the operating companies successfully focused local politicians' attention on the danger that bypass would lead to higher rates for ordinary local households. They managed to persuade those lawmakers that bolstering local telephone company revenues was the best way to reduce price hikes for the households. Intelsat has likewise made itself into the ostensible champion of the many countries of the third world, and has thus forced Orion's advocates to condition their victory on Intelsat's protection during this decade. If Intelsat runs into trouble in the next few years, it will have substantial political leverage with which to coax regulators into making quiet adjustments to ease its pains.

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Comsat's fate is not so well assured. If Intelsat gradually withdraws its close support, Comsat will have no major constituency left. Comsat's leadership has great hopes for its new commercial ventures in the U.S. domestic market. But it will surely have to consider seeking regulatory permission to compete with Intelsat if it loses its monopoly on direct access to that system.

Approving entry by Orion and other applicants will be only a first step in a continuing reappraisal of the regulation of international telecommunications. And the opportunities to bypass have multiplied. Many nations are interested in launching alternative satellite systems. British Telecom's Unisat could independently serve the eastern United States and Western Europe if it wished. France's Telcom system, which already serves France and the French Caribbean, could be modified to link up with the United States and Eastern Canada (notably Quebec). Iberoamerican proposes to link Spain with Latin America. Luxembourg and Ireland have discussed an Atlantic system, and Sweden is considering a Scandinavian system. Finally, Japanese companies are studying a Pacific Basin configuration for a telecommunications satellite (which may be bought from the United States in order to mollify the anger of the U.S. Congress concerning the trade balance in telecommunications equipment).

None of these systems will pose a serious competitive threat to Intelsat unless it can carry traffic to the United States. And no government had thought seriously of challenging the Intelsat monopoly until the United States broke the ice by giving preliminary approval to competition. Now that final action by Washington is imminent, detailed proposals are under consideration elsewhere as well.

The FCC will also be considering the applications that have come in since Orion's for permission to launch international satellite service. Among the applicants are International Satellites, Inc., backed by United Brands and by TRT, an international telex and telegram network, which like Orion wants to offer specialized service; RCA American Communications, Inc., a leader in domestic satellites; Cygnus Satellite Corporation, which wants to serve the Caribbean as well as Europe; and Pan American Satellite Corporation, which plans to serve Latin America. In the aftermath of these decisions, aficionados of regulatory policy should watch for several other benchmark policy choices. What rules will govern pricing and access to Intelsat? How vigorously will the United States support entry by American satellite carriers into other countries? What will these proceedings imply for entry by foreign satellite systems into those countries? Will the United States eventually decide to grant U.S. entry to new foreign common carriers—say, a French satellite system—and if so will it demand strict reciprocity for American carriers? How will new transoceanic telecommunications cables be coordinated with the international satellite system? How much supervision will the FCC exercise over the pricing agreements reached between American carriers and foreign PTTs? As the answers to these questions unfold, consumers will learn whether monopoly or competition will be the fate of the international telecommunications market. ■

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Insider Trading as Victimless Crime
(*Continued from page 10*)

his information before trading. But the SEC proceeded to adopt a regulation declaring everyone with knowledge of impending takeover offers to be such an "insider." The commission also prosecuted an investment analyst who had discovered a massive corporate fraud but had taken time to warn his clients to sell their shares before he passed on the story to reporters. The high court threw out the case against him in 1983, again because he had no duty of disclosure. A court has just convicted a *Wall Street Journal* columnist whose "inside information" consisted of advance knowledge of his own articles.

Like other victimless crimes, insider trading is hard to stamp out. In a 1980 article, Michael Dooley of the University of Virginia analyzed both SEC enforcement and private damage actions under the insider trading laws and concluded that "the present enforcement system has not deterred insider trading appreciably." Stocks still rise before good news is made public and fall before bad news is made public; a 1981 study by Arthur Keown and John Pinkerton of takeovers between 1975 and 1978 found that close to half the price run-up typically occurred before the takeover was announced. This is not surprising, given the substantial sums involved. What would be surprising is if corporate America and the financial community could not between them find a way to cash in on nonpublic information without leaving a trail for the SEC and the plaintiff's securities bar.

But the law does have some effect, by severely penalizing potential traders who are not in a position to cover their tracks. The absence of their competition gives the inside traders who expect to get away with it *more* chances for profit than they would otherwise have, by slowing down the adjustment of market prices to reflect new information. Manne and others suggest that a system of partial enforcement of regulations may actually increase disclosure delays compared with a regime of free and open insider trading.

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Redistributing Risk

Chris Whipple

HEALTH OR SAFETY regulation can reduce risk. Or it can simply *transfer* risk from one technology to the next, or from one risk bearer to another. We ban some substances or technologies or practices on grounds of risk, only to see less desirable and, in many cases, more hazardous alternatives chosen. When we eliminate one risk, another springs up in its place. William Havender has noted, for example, that the leading alternatives to the pesticide EDB may not be any safer than EDB and have not been studied to the same degree.

No one knows how prevalent such cases are. Certainly many, if not most, actions taken to reduce health and safety risks do their job without provoking conspicuous risk shifts. But if unanticipated risk substitutions are common in cases where the stakes and public visibility are high, they are likely to be more common in cases that receive little analytical or public attention.

Here I describe the many ways in which risk shifts occur. Some of them are indirect and easy to overlook. Greater awareness of the nature of these shifts may encourage analysts to anticipate them, and may eventually lead to risk management approaches which avoid the myopia that now seems so widespread.

Chris Whipple is technical manager of the Energy Study Center, Electric Power Research Institute, Palo Alto, California, and a past president of the Society of Risk Analysis. The views here are his own.

Direct Substitutes

Regulators often seem to assume that, as Peter Huber puts it, "new products and processes generally add to the risk burden of our environment." In fact, he correctly points out, "most new products do not 'add to,' they 'substitute for.' " The process can be seen at work in such major human endeavors as the provision of energy, transportation, and food. In the energy area, for example, new power plants are built to more stringent standards and are usually lo-

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cated at more remote sites than old plants. When a new coal or nuclear plant begins operation, it displaces the power (and risk) produced by older, more polluting plants. Richard Wilson of Harvard analyzed this phenomenon and concluded in 1979 that new electricity sources offer net health *benefits*. Yet the conclusion—or even the *possibility* of such a conclusion—is rarely reflected in current regulatory decisions governing coal or nuclear power. New plants are stalled for years over risk issues that are small compared with the existing risks in the supply system that the new plants could displace. And so, after a decade of vigorous regulation and ambitious research into the health impacts of energy alternatives, the irony is that the most hazardous fuel by virtually all accounts, firewood, is among the fuels now experiencing the most rapid growth.

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Another energy choice with risk implications is posed by weatherstripping, which reduces the hazards associated with energy use, but increases the hazards of indoor air pollution—specifically, radon gas. Henry Hurwitz, Jr., reports that if the conventional assumptions used in energy risk analysis are applied to indoor radon, a 20 percent reduction in air infiltration would appear to produce an added lifetime lung-cancer risk on the order of 200 cases per million people exposed. As energy risks go, this is substantial. Similarly, though there is dispute over how risky it is to use an unvented kerosene heater in a tightly insulated house, it seems logical to suspect that the risk exceeds that of smoke from a distant power plant. While indoor pollution is now getting some regulatory attention, such risks were not considered in the energy policy deliberations that led the government to promote conservation and alternative energy sources. Congress, in assigning responsibility for nuclear power regulation to the Nuclear Regulatory Commission and for coal to the Environmental Protection Agency, has created a regulatory structure that discourages these agencies from basing government policy on energy risks considered in total.

Cyclamate and saccharin offer another textbook example of the hazards of looking at risks one at a time. The absolute degree of human risk posed by these substances is not known, but high-dose animal tests seem to show more danger from saccharin than from cyclamate. Based on these animal tests, Canada has banned saccharin but kept cyclamate legal. So how did the United States manage to do the reverse? Perhaps by considering the two substances separately, several years apart, rather than considering artificial sweeteners in general. The case for comparing the risks from sweeteners, especially given the clear public and congressional demand for a low-calorie sweetener, seems overwhelming. But the Food and Drug Administration (FDA) operates under the legal assumption that carcinogenic risks in the food supply from food additives should be eliminated, not compared.

Cures Worse Than Diseases

Sometimes the source of new risk is not the substitute for a hazardous product but the very measures taken to make that product less hazardous. Here the classic example is TRIS, the fire-retardant chemical. Back in the early 1970s, the Consumer Product Safety Commission hurriedly adopted a rule requiring manufacturers to treat children's pajamas with the chemical. Only some five years later, well after the rule had been implemented, did concern shift to the potential cancer risk from absorbing TRIS through the skin. Similarly, the 1976 swine flu vaccination program, which caused numerous cases of Guillain-Barré syndrome, now appears to have been harmful on balance.

These decisions look bad in hindsight. Yet at the time they were made, the risks of waiting for more analysis undoubtedly seemed worse than those of going ahead. But there are other cases in which the foreseeable risks of a safety measure are apparently being ignored. For example, farmers are developing pest-resistant crop strains in order to avoid the regulatory

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problems and publicly perceived risks with pesticides. But, according to biochemist Bruce Ames, these strains are high in natural toxins which often produce positive results in mutagenicity tests and in other tests deemed relevant to human risk identification; moreover, natural toxins are typically several percent of the dry weight of a plant and *must* be consumed, whereas pesticides are present only in trace amounts and can generally be washed off.

Another situation, studied by Lester Lave in 1983, involves the proposal of the National Highway Transportation Safety Administration (NHTSA) to recall middle-sized GM cars (A-cars) for inspection and, if needed, replacement of defective axle buttons. By Lave's analysis, the risk to the owner of such a car from a failure of this particular part over the car's useful life would have been less than a tenth of the risk from driving a few miles; in other words, the risk of driving to and from the GM dealer for the recall inspection would have significantly exceeded the risk that would have occurred without the recall. Obviously, the risk was trivial. And happily good sense prevailed in this case. After delaying its decision for almost two years (in which the accident experience of these autos was found to conform to GM's prediction), NHTSA agreed with GM to recall only cars whose axles came from GM's Buffalo plant (a high-defect group).

Diseases Worse Than Cures

Some safety measures, on the other hand, do generally reduce risk—but are unjustifiably attacked because they present a lesser risk of their own. We have all known people who explain their failure to use seat belts by arguing that it is sometimes safer not to be buckled in. Often the argument is accompanied by a vivid description of accidents where the driver was thrown clear or was able to escape from a burning or submerged car. Undoubtedly there *are* cases in which safety measures adversely contribute to the probability of accident or the seriousness of its consequences. But the appropriate focus here is the *net* effect of a safety measure. Seat belts clearly do provide a net safety benefit, even though they occasionally do harm. Most people would regard a ban on seat belts, based on occasional adverse events and in disregard of their safety benefits, as stupidity of high order.

Why, then, do we accept comparable actions in other contexts? When the FDA proposed to ban sodium nitrite, the debate initially

Most people would regard a ban on seat belts, based on occasional adverse events and in disregard of their safety benefits, as stupidity of high order.... Why, then, do we accept comparable actions in other contexts?

stressed the weak evidence for sodium nitrite's carcinogenicity as well as the aesthetics of gray meat, rather than the strong evidence that the chemical prevents botulism. Net risk was ignored. Currently, scientists are studying several compounds produced when water is chlorinated, and the public is being told of carcinogens in the drinking water. Often overlooked is the fact that chlorine is added in the first place to disinfect the water and protect the public health. Manufacturers are becoming unwilling, for reasons of liability and licensing cost, to produce vaccines and other drugs that entail a small probability of adverse side effects—for example, pertussis (whooping cough) vaccine. Yet it is clear beyond dispute that many of these products offer net public health benefits.

"Life might have been more risky, but it was cheerier with the old, bright food colors."

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At the risk of drawing too strong an inference from a few cases, let me suggest that the degree to which net risks are considered depends on the perceived risk of going without the safety measure. Driving without seat belts is a risk we all know about, but botulism and whooping cough are no longer perceived to be serious threats. The irony is that the perception is accurate—but only because we do use the nitrites and vaccines that are now being attacked as unacceptably dangerous.

Occupational Risk Transfers

So far my examples have been limited to the alternative risks faced by the consumer. Each risk that is eliminated seems to give rise to a new risk that may partially or entirely offset the anticipated safety gain. But there is another type of risk transfer that involves a shift of risk between individuals. Here we learn that increasing one person's safety often reduces another's.

It is conventional wisdom that reducing public risk is never free. It is less often recognized that reducing *public* risk often means creating *occupational* risk. An example from the French nuclear power program provides a perfect illustration. In 1981, Jacques Lombard and Francis Fagnani analyzed the trade-offs between public and occupational protection involved in selecting systems to control liquid and gaseous effluents during normal operations of nuclear power plants. Nine systems were analyzed, six of which are used in French reactors. In eight of the nine, the installers or monitors of the control system suffered a radiation dose that exceeded the reduction in the public radiation dose—in two cases, by a ratio of 400 to 1.

There is nothing inherently wrong with taking such safety measures. After all, occupational risk and public risk occur under markedly different conditions of information, consent, and compensation. Whether the value system implicit in this decision is appropriate is an interesting political question. But what is relevant here is that these occupational risks exist, and are likely to exist whenever someone says "go make things safer." If we tell the owners of city buildings to reinforce their masonry so that bricks do not fall on passersby, workers may be killed in falls from scaffolding.

A generalized analysis of occupational risk transfers was made in 1979 by researchers on a joint risk-assessment project of the International Atomic Energy Agency and the International Institute for Applied Systems Analysis. The authors, Stuart Black and Friedrich Niehaus, examined the safety of workers who were producing safety equipment and concluded that "total risk cannot be reduced beyond any given limit." They continued:

> At a certain point the occupational and public risk of producing safety equipment becomes higher than the reduction achieved in an existing risk. Based on data from the Federal Republic of Germany it has been estimated that 1 equivalent death or 6000 equivalent lost man-days are caused during the construction and installation of safety equipment costing about $33 million. Thus, expenditures on safety at marginal costs of risk reduction higher than $33 million per equivalent life saved would actually lead to an increase in risk. One might conclude that it had been made "too" safe. Furthermore, this expenditure implies that 1400 man-years of effort [the labor that $33 million buys] per equivalent life have been used for no net gain in safety.

Clearly, one can make an argument against paying huge sums per unit of risk reduction simply on grounds of risk itself. It seems ridiculous to spend $33 million (or whatever the appropriate number for the U.S. situation would be) to shift a fatality or disabling injury from one individual to another. But that is what we do when we look at risks too narrowly and apply risk criteria that are too conservative.

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Cures That Aggravate Diseases

Another form of risk substitution consists of changes in human behavior in response to regulation. For example, as bicycles became increasingly popular in the 1970s, bicycle acci-

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dents—as well as measures for reducing the accidents—increased. The problem prompted four authors at the University of California at Santa Barbara to launch a study in which they correlated year-to-year accident trends with five engineering steps used to improve bike safety—more and wider bikeways, bicycle traffic circles, bike-free zones where many accidents had occurred, and so on. The results suggested that the engineering steps had predominantly *increased*, not decreased, accidents. The apparently surprised analysts searched for possible reasons.

> It is hard to immediately know what to make of this finding. Perhaps the roundabout directly made bike riding more hazardous or, alternatively, bike riders took advantage of the improved traffic flow to increase their speed. The latter is the interpretation apparently favored by University engineers.

One can find many other examples of this phenomenon of offsetting behavior. Noting that the fatality rate from tractor accidents was roughly constant from 1920 to the late 1960s in spite of many engineering improvements, Chauncey Starr speculated in 1971:

> This situation might indicate that the risk arises from the mode of use of the tractor, rather than inadequate machine design. In view of the highly variable terrain, and types of operation in which tractors are used, it is likely that the individual fatality risk level is established by the individual operator as acceptable to him.

In a quite different area W. Kip Viscusi has discovered another version of the phenomenon—an apparent correlation between child-resistant packages and an increase in accidental poisonings. It is likely, he says, that "consumers have been lulled into a less safety-conscious mode of behavior by the existence of safety caps." And Gilbert White's classic study of natural hazards found that a massive program to reduce flood losses by building dams had encouraged people to settle on flood plains. The dams offered protection most of the time, but infrequent floods caused more extensive damage than had occurred before the program was undertaken. In other words, a high-probability, low-consequence risk of many smaller floods was replaced by a low-probability, high-consequence risk of a few big ones.

The cases described here can be generalized simply enough: safety measures can reduce the incentive to act safely. Sam Peltzman shook up the automobile safety community in 1975 when he published an analysis finding that the health benefits of auto safety devices were illusory—that, instead, reductions in driver fatalities had been virtually offset by increased pedestrian deaths and nonfatal accidents. While these results are disputed, the principle has undoubtedly affected the thinking of risk regulators. The emphasis has shifted from engineered safety features to tighter social control of driver behavior. Recent safety gains have come from tougher enforcement of drunk driving laws, maintenance of the 55 mph speed limit, and, in several states, mandatory use of seat belts. Perhaps the upsurge in popularity of high-performance cars indicates that many drivers now feel safe enough. If Peltzman is even roughly correct, the nation's bicyclists and pedestrians would be well advised to take cover.

... a massive program to reduce flood losses by building dams had encouraged people to settle on flood plains. The dams offered protection most of the time, but infrequent floods caused more extensive damage than had occurred before the program was undertaken.

The Health Benefits of a Material World

It is now understood that resources used for risk control are unavailable for other social purposes. It is less often appreciated that the public health is sensitive to income and economic growth. In our risk analyses we account for the direct health benefits that risk-reducing investments provide, but we do not generally consider the health benefits that would occur if these resources were simply used to increase per capita income. Yet the links between economic well-being and health have long been known, even if the mechanisms that drive this relation (medical care, diet, shelter, and other material standards) are not fully understood by expert observers.

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A brief digression on the amazing rate of increase in life expectancy is in order. As of 1983, U.S. life expectancy at age thirty-five has increased by 0.6 years since 1980, by 2.8 years since 1970, 3.4 years since 1960, 4.6 years since 1950, and 10 years since 1900.* The first thing one notes is that, contrary to conventional wisdom, life expectancy gains are not slowing down, but are actually increasing. Recent increases have been about 0.2 years a year, whereas the 1950–83 rate of increase was 0.14 years a year and the 1900–1950 rate was 0.11 years a year. This acceleration is also observed for life expectancy at age forty-five and sixty-five and, since 1970, at age twenty-five. For a perspective on these numbers, note that the longevity gain between 1980 and 1983 was slightly greater than that which would occur by the permanent elimination of all motor vehicle accidents.

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What part of this longevity gain results from income growth? Since we do not understand the origin of the gains, we cannot estimate the health benefits of income growth with great confidence. Nevertheless, a few analyses have been made. Samuel Preston estimates that, between 1938 and 1963, about 16 percent of the gain for the world as a whole came from increases in per capita national income. He cautions that this estimate is highly uncertain, especially for the poorest countries; confusing the issue is the fact that, worldwide, life expectancy is increasing at a rapid rate, but only a small part of the increase can be explained by economic factors. Nevertheless, applying Preston's rough estimate of 16 percent to the 1970–83 gain of 2.8 years, the answer to my question is slightly less than half a year. The figure would be higher for those under age thirty-five, lower for those over thirty-five. In terms of mortality, a life expectancy gain of slightly less than half a year converts to roughly 50,000 fewer deaths a year in the United States.** M. Harvey Brenner estimated that the 3 percent decline in the real per capita income trend in the 1973–74 recession produced 59,996 excess mortalities.

While I emphasize the imprecision of these estimates, they do suggest that the influence of economic changes on health is substantial. Just because we cannot measure economy-related health effects precisely does not mean they are unimportant. And certainly the evidence here, given a plausible relationship and significant effect in a large population sample, is better than that for many risks now regulated. Fuller details of the argument have been developed by Brenner and Aaron Wildavsky.

Given that even the simple, direct risk substitutions described above so often fall into cracks in the regulatory structure, it should come as no surprise that the health impacts from the economic consequences of regulatory decisions are routinely ignored. As we have seen, safety requirements often shift risks to workers who make safety equipment. It is also clear that safety investments use resources that would otherwise be used to increase income, and that even small income changes are associated with health changes that may be larger than the risks of concern. While it may be politically attractive in some quarters to portray our industrial economy as sustained only by the toleration of large public or occupational hazards, the evidence is that in the aggregate economic growth *extends* life.

Misdirected Incentives

My focus so far has been risk shifts arising from administrative regulation, but that is only one of several approaches to risk control. Nonadministrative approaches to risk management—for example, insurance, common law, and self-management—often operate through incentives. And when these nonadministrative sys-

*These data are from the Metropolitan Life Insurance Company *Statistical Bulletin,* July–September 1984. Life expectancy at age thirty-five instead of at birth was chosen to avoid longevity gains due to decreases in infant mortality not related to the risk issues described here.

**Richard Schwing found that longevity changes in years correspond to roughly 0.02 times the annual death rate per 100,000 population ("Risks in Perspective—Longevity as an Alternative to 'Lives Saved,'" General Motors Research Publication GMR-2133, February 26, 1976).

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tems ignore risk transfers, they are likely to misdirect incentives.

When property is insured, the owner's incentive to protect it from harm is reduced. Collectively, this insurance incentive increases loss; the term for this is moral hazard. Socially, we accept this situation because we believe that the added losses are small, and the benefits of risk-spreading through insurance large. But, because incentives are important, insurance companies generally do not insure property for its full value. Deductible amounts provide at least some of the correct incentive.

Tort law provides an incentive to carefully manage risks we create for others. But the first rule is "do no direct harm." Taking a hypothetical case, consider a vaccine that saves a hundred lives while causing two deaths. If no alternative treatment were available, this vaccine would seem to be worth having, since it saves on balance ninety-eight lives a year. In today's legal environment, however, it appears likely that compensation—quite possibly including *punitive* damages—would be paid to the estates of the two people killed. To the extent that these deaths were foreseeable, the liability might be sufficiently large to discourage production of the vaccine. As desirable as it may be to socialize the risk of adverse reactions to a vaccine, the incentives seem misplaced if liability for risk precludes a risk reduction. There is, moreover, an asymmetry here, in that the risk that is present without the vaccine is not socialized.

As desirable as it may be to socialize the risk of adverse reactions to a vaccine, the incentives seem misplaced if liability for risk precludes a risk reduction. There is, moreover, an asymmetry here, in that the risk that is present without the vaccine is not socialized.

Some argue that such liability creates an important incentive to reduce risks, even those of risk-reducing products. This may be true for established products, but the liability also provides a powerful disincentive to those who would develop new risk-reducing products. Here a regulatory approach seems preferable to liability. As safer products are developed, approvals for older, more hazardous ones could be withdrawn.

Self-management of risk depends on accurate information about what is risky. But a series of articles published in 1981 illustrates that even medical experts can fail to recognize a risk transfer, and even with a well-studied risk (*American Journal of Epidemiology*, vol. 114, no. 1). Separate studies of populations of Japanese-Americans in Hawaii, Yugoslavs, Puerto Ricans, and Americans found a correlation between *lower* blood cholesterol levels and *higher* cancer incidence. The studies suggest that a low cholesterol level poses as much risk of cancer as a high level poses of heart disease, a finding that one would be hard pressed to find reflected in either the professional or popular literature regarding the risks from cholesterol. Undoubtedly, many people with low blood cholesterol now avoid cholesterol-rich foods. As is common with epidemiological studies, the studies raise more questions than they answer, and there is by no means a consensus on the implications among epidemiologists. But the findings did prompt the late distinguished epidemiologist Abraham Lilienfeld to write: "These data . . . provide a lesson for epidemiologists. . . . [and] clearly indicate that we should not become so specialized in our research endeavors with respect to one disease entity that other entities are ignored."

Regulatory Externalities

Just as it is no longer acceptable for industry to ignore externalities, it is equally inappropriate for risk managers, including regulators, judges, doctors, and others, to ignore the consequences of their actions. Under narrowly considered risk decisions, risk transfers are a type of externality. One means of detecting and perhaps reducing the incidence of unanticipated risk transfers is for risk and policy analysts to be aware of the systemic factors, described here, that frequently give rise to these effects. Full disclosure of transfers by risk assessors and regulators should be the goal; and, wherever legally feasible, a net risk point of view should be taken in interpreting congressional intent in risk legislation.

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A net risk perspective offers obvious public health benefits. In some cases this perspective may also avoid political conflicts about regulatory decisions. As examples given here have indicated, some decisions not to regulate a small risk can be defended on risk grounds alone. When this is possible, the regulator avoids the complex value-based arguments familiar in cost-benefit debates.

Regulators should also take care to understand that traditional practices that tempt them to put their thumb on one side of the risk scales, such as the tendency to overemphasize distinctions between old and new risk or natural and man-made risk, will generally lead to greater loss of life than will policies that are insensitive to the origin of the risk. Our values toward risk need not be neutral in these and other qualitative dimensions, but we should understand that aversion to risks with undesirable qualities can lead to risk-increasing transfers. This happens when people who are afraid to fly travel by automobile.

... the tendency to overemphasize distinctions between old and new risk or natural and man-made risk ... will generally lead to greater loss of life than will policies that are insensitive to the origin of risk.

Likewise, one frequently encounters the attitude that "conservatism" in the analysis of uncertain risks is the best way to protect the public. But this is not true when risk transfers are likely. Adopting "worst-case" assumptions about a substance or technology can amount in practice to adopting "best-case" assumptions about a substitute that may in fact be worse. At the very least, such an approach diverts resources from more beneficial ends.

Finally, a degree of modesty would be welcome in targeting small risks involving complex processes where unknown risk transfers can easily swamp the intended result. Two major sources of risk transfer—occupational risk transfer and the risk effects of slowing down economic growth—are apparently of special importance in the case of small, diffuse risks that are expensive to eliminate. Indeed, it may be that case-by-case elimination of small risks not only is less cost-effective in health terms than are measures to improve economic growth, but at times actually can conflict with those measures.

Looking for risk transfers would appear, at first glance, to further complicate the already complicated business of risk regulation, increasing the analytical burdens on agency staff and policy makers. But the stakes involved are high enough to make it worthwhile. When we recognize that it is often difficult to bring about a net risk reduction, let alone an improvement in social well-being, we will be better able to deal with the risks we face. ■

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Readings
of particular interest

Planning Their Way to Poverty

The Poverty of "Development Economics" by Deepak Lal (London: Institute of Economic Affairs, 1983), 127 pp.

The distinguishing feature of "development economics" has been its claim that the prescriptions of "orthodox" or "neoclassical" economics are of little relevance to the Third World. In this book Deepak Lal, professor in political economy at University College, London, argues that developing countries ignore price theory at their peril and says hard experience is leading many leaders of less developed countries to reevaluate their policies.

In the development theories of the 1950s and 1960s, Lal says,

> the allocation of given resources, a major concern of orthodox economics, was considered of minor importance compared with the problems of increasing material resources. . . . Changes in income were substituted [for changes in relative prices] as the major adjustment mechanism for bringing supply and demand into balance.

The theory attached prime importance to "macro-economic accounting aggregates such as savings, the balance of payments, and the relative balance between broadly defined 'sectors' such as 'industry' and 'agriculture.' "

This theory resulted in a distinctive set of recommendations. Free trade and reliance on the price mechanism might be all very well for advanced industrial countries, but developing countries could not afford them. In particular, development economics embodied a perspective Lal calls "trade pessimism," holding that poor countries were "unequal partners" faced with "inexorably declining terms of trade." For them to prosper by exporting manufactured goods seemed out of the question, since industrial countries were already specialized in doing that. The demand for traditional tropical goods such as tea and rubber was declining, or at least not growing as fast as northern economies were. The demand for raw materials was cyclical, and in any case countries that relied on such exports risked exploitation, if not outright neoimperialism. Since poor countries could not expect exports to lead them out of poverty, they had to aim for self-sufficient growth. Moreover, this internal growth could not very well be left to the usual unplanned capitalist processes; that would, at best, enrich the few while leaving the masses behind. What was needed was a government "strategy" for economic development.

These ideas were soon embraced by national leaders the world over. "The typical development plan," Lal says, "first laid down a desired rate of growth of aggregate consumption." Planners then decided how much of each commodity the plan would require by consulting an "input-output" chart of the national economy. Since the plans specified desired quantities of various goods, their implementation generally entailed direct production controls, "including state provision of some goods considered either too important to be supplied by the private sector or unlikely to be produced by the private sector in the planned amounts."

The exercise neglected the role of prices. Planners doubted that the poor and ill-educated masses would respond rationally to changes in relative prices anyway. In their role as consumers, the poor were presumed to use only "necessities," not "luxuries" whose consumption might be responsive to price. In their role as producers, they were presumed to rely on traditional modes of production that were thought to require fixed input ratios. Indeed, the fatal oversimplification of the input-output chart, the author believes, was its assumption that inputs must be used in fixed proportions to generate outputs regardless of price.

Most plans sought to encourage the development of domestic industries to replace im-

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ports wherever feasible, and governments erected high protective barriers, especially quotas, to keep out foreign goods. This policy of "import substitution," with its implicit withdrawal from the arena of international trade, could impose severe isolation. In India, beginning in the late 1950s, "[a]ll requests to import were subjected to administrative scrutiny, and even the most petty imported items required a license. Moreover, import licenses were not available for goods which could be produced within India."

This led to effective tariff rates that were both high and quite variable. One common device was the "cascading" tariff that imposed especially high burdens on more highly processed products. For instance, there might be a high tariff against cotton cloth, but no tariff against raw cotton itself, so that the effective tariff rate against cotton *manufacturing* was even higher than the official rate would suggest.

Foreign exchange controls became a major way of enforcing the plan. By making it illegal to hold foreign exchange without authorization, and then doling out currency reserves at its pleasure, the central government could easily determine which industries and enterprises could import and which could not—a decision that usually determined which would live and which would die. The controls were usually billed as a response to a chronic shortage of foreign exchange, but the shortage soon became a self-fulfilling prophecy, since the import controls were in effect a tax on existing and potential exporters.

It did not take forever for Third World leaders to begin noticing that the system did not work as intended. The policy of import substitution had replaced cheap imports with expensive, inefficient domestic industries. The bias toward manufacturing and the import of capital goods had resulted in the establishment of overly capital-intensive factories that made too little use of the local labor force. Controls on imports and foreign exchange, along with export subsidies, had led to immense corruption and waste.

Meanwhile, the export of manufactured goods to the West was turning out not to be a dead end after all. Aside from fuel, the share of developing-country exports represented by manufactures has increased from 10 percent in 1955 to more than 40 percent in 1978. At the same time a number of countries, notably in East Asia, were beginning to enjoy tremendous success by pursuing "outward-looking" trade policies. South Korea, for instance, is as populous as Egypt and was even poorer in 1950; yet by the late 1970s it had become a major industrial exporter.

Lal concludes that the developing world is learning a crucial lesson from the failures of development economics, but at the same time is becoming vulnerable to a new danger: the prospect that the North may slam its doors against the products of the South. The author says "protectionism poses a more serious threat to Southern prosperity than the mere slowing down of Northern growth."

The Economics of Title: How the Law Decides What's Whose

"Information, Uncertainty, and the Transfer of Property" by Douglas G. Baird and Thomas H. Jackson, in *Journal of Legal Studies*, June 1984, pp. 299-320.

Nearly all theories of private property assume that an owner of property has the right to transfer it to someone else. In fact, this right is the basis of most property rights we enjoy, since few of us have actually turned things we own into private property from a state of nature or ownership in common. An elaborate network of legal rules has developed over the centuries to govern the transfer of property rights—ranging from the symbolic "delivery" of a ship at sea to the creation of a security interest in a partially completed motion picture. In this paper, Douglas Baird and Thomas Jackson, professors of law at the University of Chicago and Stanford University respectively, examine these rules as ways of enabling present and would-be property claimants to reduce the uncertainties that inhere in every assertion of ownership.

They begin with the observation that in a world where information is not perfect, we can fully protect a later owner's interest or an earlier owner's interest, but not both. For example, a rule that prevents an individual from becoming an owner if there is a thief in his chain of

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title protects present owners fully but slights the interests of would-be owners. The reverse rule, which grants legitimate title to a thing to anyone who buys it from a person in possession, protects buyers fully but owners not at all. Most of us are both owners and buyers, both potential victims of theft and innocent purchasers of dubious goods, and we profit if the law arranges matters so as to minimize the sum of the two dangers—that felons will make off with our property and that a long-lost claimant will show up to take it away. The more effective a set of transfer rules is in increasing acquisitional certainty *and* dispositional certainty, the more valuable it will be to own property in the first place.

The rules of transfer, the authors say, can themselves affect the total amount of risk both parties collectively must bear. For example, a public filing system wherein all owners are required to make a permanent record of their interests lessens the risk of defective title in land without undermining the consensual nature of land transfers. These benefits must of course be balanced against the costs of maintaining a recording system. Property transfer rules should also allocate risks sensibly between present and would-be owners, with the allocation depending, to some extent, on which party can better guard against the risk of defective title.

The paper uses these principles to illuminate the question of why different rules apply to different kinds of property transfers in Anglo-American property law. For example, in olden days an owner of property, whether real or personal, had to take actual physical possession before he could be certain that his claim would remain superior to that of others. Baird and Jackson say such a rule allows the state to keep its enforcement costs extremely low, even though it sacrifices other values.

In modern times more differences have emerged between real and personal property in the rules governing transfers. Transfers of real property generally must be recorded, which puts prospective purchasers on notice of claims and greatly reduces uncertainty. But not all types of property are made more useful by compulsory disclosure. The best example of a kind of property that is *not* suited to a filing system is money. It would be possible to identify each bill precisely by serial number in a registry, but the disadvantages of doing so would be enormous. Unlike land, money is transferred frequently, and seldom serves as collateral; when it does, because it is divisible, it hardly ever has to serve as security for several different lenders at the same time. Unlike goods such as ships at sea, possession of which cannot be readily handed over, money can always be passed easily from one person to another. A legal rule that

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"Mrs. Wilcox? I think you'll be happy to hear we've recovered your stolen car."

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makes possession of money virtually the sole source of relevant information seems to balance the need for information and the concept of consensual transfer.

Between the polar opposites of money and land, other kinds of personal property provide intermediate cases. Recording systems that establish title of personal property are rare, at least for goods whose owners are in possession, since the informational advantages of such systems do not generally seem to outweigh their costs. Personal property is usually less valuable than real property and is likely to be transferred more frequently. Moreover, a title-based recording system is hard to organize for, say, grain, which (unlike land) cannot be identified reliably by mere description. There is no easy way of knowing that the grain in a silo was the grain grown on this parcel rather than that, or the same grain that was there yesterday. Grain is also moved commonly from one jurisdiction to another, which would make it hard for prospective purchasers to know which files to check.

Some items of personal property, however —notably airplanes, cars, and ships—are covered by title recording systems. Although serial numbers and the like can be changed, individual airplanes, cars, and ships, like real property, are relatively easy to identify in a unique way. Anonymous 747s seldom turn up. Like real property, moreover, these sorts of tangible property tend to be valuable enough to justify the costs of a title-recording system. Since they are mobile, however, the title-recording systems differ from those that cover real property, which by definition never moves. It is usually easy to know *which* filing system to consult in the case of real property, but lawmakers must decide where to establish registries for mobile items and how many to maintain. Legal principles can provide guidance on these questions as well.

The main difference among the filing systems in use today concerns whether a subsequent purchaser may take legitimate title if a prior owner has an otherwise legitimate interest in the property but did not file it properly. Baird and Jackson argue that the claims of those not in possession, who have failed to record their interest or who have recorded it improperly, should lose to those of subsequent purchasers, and it is irrelevant that the subsequent purchasers may have had knowledge of the faulty claim. First, any inquiry into states of knowledge is likely to be expensive and time-consuming. Second, it is easier to live in a world in which everyone must comply with a few simple formalities than to live in a world in which the validity of anyone's property rights can be compromised by doubts over whether certain individuals had knowledge at some particular time in the past.

Furthermore, Baird and Jackson offer another argument against punishing purchasers with knowledge. Acting with knowledge, in and of itself, is not the same as acting in bad faith. We deny thieves the right to convey any title at all to third parties because we want to discourage theft. We refuse to recognize the rights of those who lie or are otherwise in bad faith, because we want to discourage fraud. We should not, however, penalize people merely for having knowledge. Other things being equal, while we do not want to encourage people to steal or lie, we do want to encourage them to gather information.

Certain categories of legal rules, such as those banning insider trading, act to prohibit persons with knowledge from taking advantage of their knowledge. Whatever the merits of those rules, however, they do not apply here, the authors argue. A purchaser who discovers that a filing by an earlier claimant is defective enjoys no special advantages in a world that allows him to take good title notwithstanding his knowledge. He competes on the same footing as everyone else, because all bid for the same thing: the right to acquire title free of the interest of the person who had recorded the defective claim.

Litigation without End

"Terminating School Desegregation Lawsuits" by Michael Greve, in *Harvard Journal of Law and Public Policy*, vol. 7, no. 1 (Winter 1984), pp. 303-315.

Charles Dickens's famed case of *Jarndyce* v. *Jarndyce* notwithstanding, most lawsuits get resolved within a finite time period. Civil-rights cases involving the public schools are an exception. "Desegregation lawsuits are not a matter

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of months or even a few years," writes Michael Greve of the Program on Courts and Public Policy at Cornell. "The fact is that desegregation suits are never terminated. . . . In fact, there has almost never been a desegregation case which has been conclusively settled"—in which the court has pronounced itself satisfied and retired from the scene. A number of cases once thought settled have been reopened; and even Topeka, Kansas, the defendant in the landmark 1954 case of *Brown* v. *Board of Education*, is once again being sued.

In theory, a busing case ends when a school system is found by a court to be "unitary," or fully desegregated. What this means in practice is far from clear. The Supreme Court has upheld very sweeping busing orders, but has declined to hold that the Constitution requires proportional representation by race. Moreover, because families are constantly moving from neighborhood to neighborhood, any balanced assignment plan is balanced for the moment only.

One Court decision, from 1976, has dealt directly with the termination question. In 1970 a judge ordered the school board of Pasadena, California, to comply with a rule of "no majority of a minority" in any school. It did so. Later a few schools slipped out of compliance as families moved. The judge ordered reassignments to restore balance, but the Supreme Court overruled, holding that once a city has qualified in a court's view as a unitary school system, the court may not impose further remedies. Greve says the lower courts have resisted this principle, so that the teaching of *Pasadena* has come to be this: "if a district judge provides school authorities with too clear a standard, e.g., 'no majority of any minority,' he runs the risk that they will meet it."

Part of the problem in such cases is simply the general phenomenon of judicial activism, the author says. But there is more. At their heart, desegregation lawsuits are not controversies about particular individuals' rights. "The subject-matter is inherently a grievance about public policy." Resolving the competing claims of the various parties is thus "an extremely difficult undertaking in social planning." Student reassignment is just one element; others include personnel desegregation, race relations training, reform of discipline codes and student organizations, and on and on. The "implementation of court orders has to be permanently controlled, and this supervisory function drags the courts deeper and deeper into the details of everyday school life." In the Boston busing case, sometimes known as "Garrity's Vietnam," Judge W. Arthur Garrity has distributed basketballs in schools, ordered the locks on schoolhouse doors to be replaced, and examined (and "corrected") the budget of the city of Boston.

It is unlikely, Greve says, that the courts will voluntarily let go of their ongoing supervisory role. He thus proposes a "statute of limitations" that would provide for the termination of a lawsuit after a school district has operated under court order for a given length of time. "Such a statute would operate as a 'sunset' law rather than a bar to initiation of suits." Anyone could still sue to remedy new acts of intentional segregation; but statistical imbalances of students would not constitute *prima facie* evidence of such intent.

A Crude Solution to the Balance-of-Trade Problem?

"The Benefits of Eliminating the Alaskan Crude Oil Export Ban: An Economic Policy Analysis" by Calvin T. Roush, Jr. (Federal Trade Commission Bureau of Economics, August 1984), 45 pp.

When Congress authorized construction of the Trans-Alaska Pipeline in 1973, it added a requirement prohibiting the export of Alaskan North Slope oil. This restriction has been extended and tightened in subsequent amendments to the Export Administration Act. As a result, North Slope crude must be shipped to domestic markets, primarily California and the Gulf Coast region, even though producers would find it more profitable to sell some of it to foreign buyers.

This study from the Bureau of Economics of the Federal Trade Commission analyzes the economic costs and benefits of these restrictions, including the distributional effects on various groups within the United States such as producers of Alaskan oil, taxpayers in various jurisdictions, and West Coast oil consumers. According to the author, the late Calvin T. Roush, Jr., repealing the export ban would in-

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crease U.S. net welfare by at least $150 million and perhaps as much as $800 million a year, depending on how competitive the West Coast petroleum market is and whether there is excess capacity among U.S.-flag oil tankers (which under the Jones Act are the only tankers that may legally transport oil from Alaska to other domestic ports).

While the net benefits of repealing the current restriction would be substantial, they would not be evenly distributed across the U.S. population. Some groups, such as producers of Alaskan oil and residents of Alaska, would realize large substantial benefits from repeal, while others, such as consumers who live in the western part of the continental United States, would be made worse off.

Producers of Alaskan oil would clearly benefit if the export ban were repealed. The net price obtainable from selling Alaskan oil to the Japanese—the price of crude oil in Japan minus the cost of shipping the oil there—is higher than the net price that can be earned by shipping oil to the U.S. Gulf Coast, the market in which residual Alaskan oil is now sold. Other beneficiaries of repeal include crude oil producers in California, who now compete with the artificially low-priced Alaskan product.

Only a minority of the increase in oil company revenues that would result from repeal would be translated into higher profits for oil producers. Approximately 60 percent would be captured by the federal government in the form of revenues from the windfall tax, and 30 percent would be captured by the governments of Alaska and California. Roush estimates that the net gains to oil producers would amount to somewhere between $60 million and $225 million a year, after the payment of increased tax revenues amounting to at least $542 million a year and perhaps $2 billion.

The increased tax revenue should either reduce the need for other sources of tax revenue or permit government to provide more services. Since oil consumers are also taxpayers and recipients of government services, they will benefit to some extent, offsetting in whole or part the cost to them of higher oil prices. How big a benefit this will represent depends heavily on which state the consumer resides in. The average family living in Alaska would get tax cuts or service increases amounting to between $700 and $2,750 a year if the ban were removed. California families would get between $12 and $62 a year. Families located in other states would receive average annual benefits in the range of $4 to $17.

On the other side of the ledger. oil consumers on the West Coast would have to pay more for petroleum products, the increase costing the average West Coast family between $35 to $103 per year. Thus, on net, residents of West Coast states would be made somewhat worse off, although a significant share of the cost is offset for California residents by higher state tax revenues.

Permitting Alaskan oil to be sold abroad would also reduce the demand for the services of U.S.-flag tankers currently used to transport Alaskan oil to U.S. ports, lowering revenues for their owners. These losses are estimated to be between $459 million and $891 million, before tax, assuming that the industry is operating at capacity before repeal but not after. Overall, however, the gains of repeal to those who gain are much larger than the losses to those who lose, Roush concludes. As a whole, the U.S. economy would clearly be better off if the ban were removed.

The Carrot and the Stick

"Prices and Sanctions" by Robert Cooter, in *Columbia Law Review*, vol. 84, no. 6 (1984), pp. 1523-1560.

Scholars of jurisprudence traditionally view law as a set of obligations or commands backed by sanctions or threats. In contrast, economists tend to view law as a set of official prices attached to behavior that harms others. Each of these viewpoints partakes of a characteristic blindness, argues Robert Cooter, professor of law at the University of California at Berkeley. The jurisprudential perspective blinds lawyers to the fact that officials cannot regulate an economy efficiently by giving orders. Instead, they must rely on legal instruments similar to prices. Conversely, the economic perspective is blind to the distinctively normative aspect of law, because not all misbehavior ought to be available for purchase by willing buyers. In brief, Cooter argues, the economic analysis of law lacks a clear account of sanctions and the

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jurisprudential tradition lacks a clear account of prices. His article attempts to bridge the two traditions by developing a theory about the differences between the effect of prices and sanctions on behavior.

A sanction is a penalty imposed for doing what is forbidden, and a price is an amount of money exacted for doing what is permitted. "Officials should create prices to compel decision makers to take into account the external costs of their acts, whereas officials should impose sanctions to deter people from doing what is wrong." The effect of creating an obligation by erecting a sanction is to partition possible acts into permitted and forbidden zones, with the dividing line representing some social judgment about correct behavior. Typically there is a jump or discontinuity in the costs the actor encounters at the point of the partition: transgressing the limit by even a step is punishable by the full force of the law. No such discontinuity applies to a price: to get a bit more of a priced good one need only pay a bit more money.

This discontinuity has profound effects on behavior. Because the typical sanction is more than adequate to deter most actors, few of them are on the margin, the place where people would respond to moderate changes in the magnitude of the sanction or the frequency of its exaction. Actors, however, do respond to changes in the *location* of the partition. In other words, when an obligation is backed by a sanction, more actors' behavior will be responsive to the exact substance of the obligation than to moderate changes in the magnitude of the sanction or the frequency of its application.

By contrast, pricing grants discretion to the individual to decide whether or not to pursue an activity, so long as he pays the price. Since prices do not usually create discontinuities in the costs faced by decision makers, the individual will balance benefits and costs at the margin. In cases where benefits and costs are equipoised, a change in price will tip the balance and cause a change in behavior. Thus, many individuals will respond to changes in the magnitude of a price or the frequency of its exaction. In summary, behavior is more elastic with respect to prices than sanctions.

A prescriptive and a descriptive conclusion can be derived from this theory, the author says. To create incentives for efficient behavior using sanctions, the lawmakers must choose the right place to partition the world, whereas to create efficient official prices for externalities, the lawmakers must correctly measure the external harm that is to be priced. These facts suggest a norm: If officials know the optimal level of behavior in general, but cannot measure how much external harm is done in particular cases, sanctions are the preferred instrument of social control. Conversely, if officials can measure the magnitude of the external harm in particular cases, but do not know what overall level of behavior is optimal in general, prices are the preferred instrument of social control. This norm can be restated in different words: If obtaining accurate information about efficient behavior is cheaper than obtaining accurate information about external costs, impose a sanction; if the converse is true, impose an official price.

The author says various bodies of law can be tested to determine whether or not they conform to this prescription, including fundamental rules in torts, contracts, crimes, and regulation. A typical result is that the concept of strict liability in tort represents a price, whereas the concept of negligence represents a sanction.

Sometimes it is difficult to determine whether a law imposes a price or a sanction on an activity. To classify such a law, it is useful to note that a price is invariant with respect to the actor's state of mind but usually variable with respect to the harm caused by his action, while a sanction is usually variable with respect to states of mind and does not necessarily vary with respect to the harm caused. A price depends only on the extent of harm because its purpose is to internalize the cost of an activity. By contrast, the purpose of a sanction may include not only compensation but also deterrence and punishment, both of which often hinge on the state of mind of the offender; intentional or malicious harms get more severe punishment.

Ignoring the roles of prices and sanctions may contribute to heavy-handed regulation on the one hand, or the trampling of genuine moral values on the other. Cooter believes a unified theory of the two will advance lawmakers' understanding of how government controls behavior.

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(*Continued from page* 3)

and billions of dollars have been spent to entirely uncertain effect. This should caution against further simple increases in CAFE (whatever other reasons there may or may not be for continuing the standards). It should also caution against similarly naive averaging techniques in other areas—as, for example, the one EPA is presently contemplating for some mobile source emissions.

Beyond this, CAFE has other peculiar effects worth noting. Henderson points out the special burden borne by manufacturers of primarily large cars, who must distort their preferred sales mix a great deal, possibly even introducing entirely new products, to avoid fines under the law. But less attention has been paid to small-car specialists, like AMC and now Chrysler, whose average mileages are safely above the standard. They must compete with diversified sellers who lower their small-car prices, recouping the losses through profits from the "tied" large-car sales that are thereby permitted. With no large cars as offsets, small-car firms are faced with a kind of regulation-induced price predation against them. Indeed, such companies might rationally decide to produce large cars, which they otherwise would not do, solely to permit them to cross subsidize. Presumably, penalizing small-car manufacturers and inducing more large-car production were not the objectives of the original CAFE law.

Some of these perverse effects and incentives could be alleviated if the standards allowed interfirm and intertemporal trading. Interfirm trading, or the selling of "excess CAFE," would permit small car producers to recover some of their losses from CAFE-induced low small-car prices. In general, such trading would promote interfirm efficiency in meeting an overall average mileage for the industry. (As previously noted, however, even this does not guarantee aggregate fuel savings.) Intertemporal trading, or "banking," is already possible, as Henderson notes, but one year's reductions are traded off for another's on essentially a one-for-one basis. In fact, the regulation should be modified to encourage earlier excesses of realized fuel mileages over the standard. A one mile-per-gallon excess in 1980 is more valuable to society than the same excess in 1985, because the higher mileage fleet would be in existence five years sooner. If CAFE "banking" is to be banking, it should not ignore time preference.

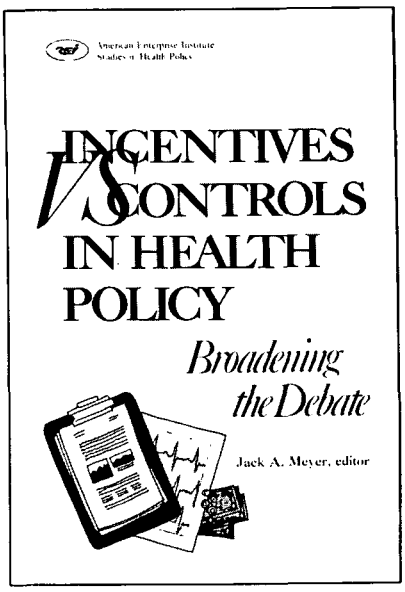
John Kwoka,
George Washington University

DAVID HENDERSON responds:

I would agree wholeheartedly with John Kwoka's analysis if CAFE applied to an auto company's *total* sales. But it does not; instead it is calculated separately for a company's sales of domestically produced cars and for its sales of imported cars. Domestic auto companies, none of which need fear going below the required CAFE on the cars they import, therefore have an incentive to increase their production of domestic small cars and reduce their imports of small cars. Doing so lowers the CAFE on their imported cars, which they can afford to do, and raises their CAFE on their domestic cars, which they badly need to do. As I stated in my article, that was why Ford dropped its German-built Fiesta and substituted its U.S.-built Escort. Thus CAFE's main effect is to alter where the small cars are produced, not how many are produced.

Nevertheless, I agree that the effect Kwoka discusses can occur and probably did occur in the late 1970s. The question is whether it occurs today. I think not, based on evidence from Chrysler's behavior. As Kwoka states, and as I stated in my article, if CAFE increased sales of small cars, it would drive down their prices and would hurt small-car producers such as Chrysler. But then one would expect Chrysler to be strongly against the CAFE law. Instead, Chrysler supports it adamantly. So either CAFE does not substantially increase small car production or Chrysler's management is irrational. I doubt that Iacocca is irrational enough to advocate a policy that hurts his own company, though I admit that I am more inclined to believe in his irrationality after reading an excerpt from his autobiography.

Finally, I disagree with Kwoka's statement that a one mile-per-gallon overachievement of CAFE in 1980 is worth more to society than a one mile-per-gallon overachievement in 1985. Precisely because, as he says, the higher mileage fleet would be in existence five years sooner, society would bear CAFE's costs sooner rather than later. Time preference yields the conclusion that society is better off the longer it postpones meeting the CAFE standards, not the other way around. ■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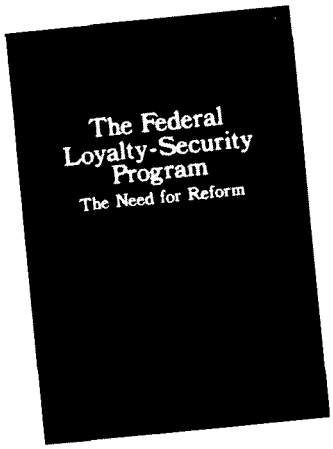

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